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Search HistoryDATE: Wednesday, October 08, 2003 [Printable Copy](#) [Create Case](#)**Set Name Query**

side by side

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L3 L2 and (photo* or image or snapshot)L2 ((725/91)!.CCLS. |(345/346 |345/357)!.CCLS. |(709/200 |709/226 |709/250)!.CCLS. |(348/233)!.CCLS. |(705/26)!.CCLS.)

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L1 (kiosk or booth) same ((digital or electric) near3 (photo or photograph or image or picture or snapshot or camera)) same (download* or store or storing or stored or storage or save or saved or saving) and (receipt or invoice or bill or billing or billed or transact* or fee or charge or charged or charging or cost) same (download* or store or storing or stored or storage or save or saved or saving) and (@pd<20010217 or @ad<20010217 or @rlad<20010217 or @prad<20010217)

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1941

L3

5405

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64

L1

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HEWLETT-PACKARD: HP announces HP Cartogra photo Internet infrastructure

M2 Presswire. Coventry: Sep 1, 1999. pg. 1

Publication title: M2 Presswire. Coventry: Sep 1, 1999. pg. 1

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Abstract (Article Summary)

Company, the worldwide leader in digital imaging, today announced new photo Internet infrastructure that allows partners and HP to develop a rich set of integrated imaging capabilities via the Web. This set of capabilities will be marketed under the brand HP Cartogra.

HP's goal is to encourage partners to develop digital-imaging services using the Cartogra infrastructure's powerful capabilities. As it grows into an extensive network of strategic alliances and partners, Cartogra will simplify the sharing of photos online within communities and e-mail, and it will enable easy posting to Web sites.

HP also will launch a comprehensive new photo Web site www.cartogra.com, which will make it easy for consumers to share pictures with family, friends and business associates online. Cartogra.com will allow a PC user, regardless of level of expertise, to immediately enjoy the benefits of the online digital-imaging experience. Users can share photos online by uploading them from any PC, digital camera or scanner. With just a few clicks, they can post, view, create, manage and e-mail digital photos.

Full Text (817 words)

Copyright M2 Communications Ltd. Sep 1, 1999

M2 PRESSWIRE-1 September 1999-HEWLETT-PACKARD: HP announces H Cartogra photo Internet infrastructure (C)1994-99 M2 COMMUNICATIONS

[Table]

LTD * Infrastructure and Web Site Make Sharing Images Ea

Fast and Reliable Palo Alto, California -- Hewlett-Packar

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Posting images to other sites, such as online auction sites, classified ads, home pages and message boards can be accomplished effortlessly from Cartogra.

Cartogra members maintain complete control of images on personalized Web page and can designate public or private viewing access to their online photos.

Users also can create personal photo albums, categorizing photos by topic or event for ease of sharing. An extensive gallery of public photos also can be accessed via the site.

Cartogra features a robust search engine that makes it easy for users to locate a specific photo by keyword or even by similar image features, allowing for easy management and sharing of photos. Users also will enjoy the convenience of scheduling large uploads or downloads of images at any time of the day or night. All Cartogra members will be allocated free Web space that they can use to post images for viewing by family and friends. (HP also plans to offer additional space via a premium service for a nominal fee.) The Cartogra site includes a discussion function that will allow members and visitors to exchange ideas online about shared photos, albums and editorial content. This will be a boon to amateur photographers, who will benefit from the insights of experts in the field through dialogue and editorial.

Users will benefit from high-resolution personal printing and the ability to order customized novelty items online.

HP SureStore E enterprise storage solutions will form Cartogra's storage infrastructure. As the Web site grows, storage will play an increasingly significant role, because the images, or data, will be viewed as a strategic asset. It's critical that this data be always up and available to the end user. SureStore E enterprise storage solutions provide the open, reliable, scalable and manageable storage solutions that meet the rigorous needs of Internet imaging solutions such as Cartogra.

About HP Cartogra HP's goal for its Internet imaging technologies is to make photos easy to share within communities and e-mail, and to enable easy uploading and posting to other Web sites. HP is seeking strategic alliances with partners interested in the photo imaging infrastructure used in cartogra.com. Information about such alliances is available by calling HP Cartogra business development at (858) 655-3352 or by sending a fax to (858) 655-4648.

About HP Hewlett-Packard Company -- a leading global provider of computing and imaging solutions and services for business and home -- is focused on capitalizing on the opportunities of the Internet and the proliferation of electronic services.

HP plans to launch Agilent Technologies as an independent company by mid-calendar 2000. Agilent consists of HP's test and measurement, semiconductor products, chemical analysis and healthcare solutions businesses, and has leading positions in multiple market segments. HP has 123,500 employees worldwide and had total revenue of \$47.1 billion in its 1998 fiscal year. Information about HP, its products and the company's Year 2000 program can be found on the World Wide Web at <http://www.hp.com>.

Information in the releases is accurate at the time of release. However, product specifications and availability, promotions, prices, relationships, contact numbers and other specific information may change over time. Some information about product pricing and availability may be limited to specific geographic areas and may differ in other areas.

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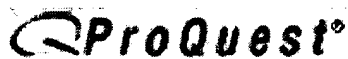
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Databases selected: Multiple databases...



HP Announces HP Cartogra Photo Internet Infrastructure; Infrastructure and Web Site Make Sharing Images Easy, Fast and Reliable

Business Editors/High Tech Writers. Business Wire. New York: Aug 30, 1999. pg. 1

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Abstract (Article Summary)

PALO ALTO, Calif.--(BUSINESS WIRE)--Aug. 30, 1999-- Hewlett- Packard Company, the worldwide leader in digital imaging, today announced a new photo Internet infrastructure that allows partners and HP to develop a rich set of integrated imaging capabilities via the Web. This set of capabilities will be marketed under the brand HP Cartogra.

HP's goal is to encourage partners to develop digital-imaging services using the Cartogra infrastructure's powerful capabilities. As it grows into an extensive network of strategic alliances and partners, Cartogra will simplify the sharing of photos online within communities and e-mail, and it will enable easy posting to Web sites.

HP also will launch a comprehensive new photo Web site, www.cartogra.com, which will make it easy for consumers to share pictures with family, friends and business associates online. Cartogra.com will allow a PC user, regardless of level of expertise, to immediately enjoy the benefits of the online digital-imaging experience. Users can share photos online by uploading them from any PC, digital camera or scanner. With just a few clicks, they can post, view, create, manage and e-mail digital photos. Posting images to other sites, such as online auction sites, classified ads, home pages and message boards can be accomplished effortlessly from Cartogra.

Full Text (669 words)

Copyright Business Wire Aug 30, 1999

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PictureVision, Inc. and NDS Group Plc Join Forces to Make Sharing Pictures Online as Easy as Watching TV

Business Editors. Business Wire. New York: Feb 1, 2000. pg. 1

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Publication title: Business Wire. New York: Feb 1, 2000. pg. 1

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Abstract (Article Summary)

NDS Group plc (Nasdaq/Easdaq: NNDS), a leader in providing business solutions to Pay-TV operators through sophisticated conditional access and interactive technology, and PictureVision, Inc., the pioneer of online photography and an independently operated subsidiary of Eastman Kodak Company, announced today that the two companies have entered into an agreement to jointly develop and market new applications that combine TV, digital photography and the Internet, called NDS Interactive Photo Applications.

It is anticipated that NDS Interactive Photo Applications will provide consumers with the easiest way yet to access pictures stored on the Internet's leading photographic sites, including Kodak PhotoNet online. In addition to giving friends and family the ability to access photos from anywhere around the world, NDS Interactive Photo Applications are also expected to provide digital camera users with a simple way to download their own personal photographic images for traditional printing at any one of the 40,000 participating Kodak PhotoNet online retailers worldwide.

"NDS Interactive Photo Applications is just one of the numerous, exciting consumer applications being made possible by digital TV and the convergence of the digital TV with the Internet," said Abe Peled, President and CEO of NDS. "We believe that NDS and PictureVision's solution will be an interactive television application that will have universal appeal. From grandmothers to the Internet generation, everyone will be able to use and benefit from NDS Interactive Photo Applications."

Full Text (1134 words)

Copyright Business Wire Feb 1, 2000

LONDON and HERNDON, Va.--(BUSINESS WIRE)--Feb. 1, 2000--

Collaboration Intended to Let Consumers, With Just A Click

Of A Button On A Remote Control, View, Use, Share & Order

Reprints Of Pictures Directly From Their TVs

NDS Group plc (Nasdaq/Easdaq: NNDS), a leader in providing business solutions to Pay-TV operators through sophisticated conditional access and interactive technology, and PictureVision, Inc., the pioneer of online photography and an independently operated subsidiary of Eastman Kodak Company, announced today that the two companies have entered into an agreement to jointly develop and market new applications that combine TV, digital photography and the Internet, called NDS Interactive Photo Applications.

NDS Interactive Photo Applications are intended to allow consumers to seamlessly view, use, share, and order reprints of pictures from digital cameras and those stored on the Internet, from their living rooms via digital TV. NDS will develop and deploy these applications in return for a share of the reprint revenues.

It is anticipated that NDS Interactive Photo Applications will provide consumers with the easiest way yet to access pictures stored on the Internet's leading photographic sites, including Kodak PhotoNet online. In addition to giving friends and family the ability to access photos from anywhere around the world, NDS Interactive Photo Applications are also expected to provide digital camera users with a simple way to download their own personal photographic images for traditional printing at any one of the 40,000 participating Kodak PhotoNet online retailers worldwide.

These applications will be available to consumers via their cable MSOs and satellite television operators. NDS and PictureVision will work with the operators to make the applications available as part of their service offerings to subscribers. The companies currently expect to begin marketing the new service in the second half of 2000.

"NDS Interactive Photo Applications is just one of the numerous, exciting consumer applications being made possible by digital TV and the convergence of the digital TV with the Internet," said Abe Peled, President and CEO of NDS. "We believe that NDS and PictureVision's solution will be an interactive television application that will have universal appeal. From grandmothers to the Internet generation, everyone will be able to use and benefit from NDS Interactive Photo Applications."

"The mission of PictureVision has always been to provide our customers with cutting-edge online digital photography services that can enable them to expand their photography experiences in new and exciting ways. PictureVision continues to lead the industry in accomplishing this goal," said David McWhorter, acting CEO for PictureVision. "By joining forces with NDS, the two companies together are going to revolutionize digital photography forever, by expanding the experience from PCs to now include TVs."

About NDS

NDS Group plc (Nasdaq/Easdaq: NNDS) is a leading supplier of conditional access software systems and interactive systems to digital Pay-TV broadcasters and set-top box manufacturers, offering open and flexible software solutions for the secure delivery of entertainment and information to televisions and personal computers.

NDS is also a leading provider of broadcast control software that is essential for managing and operating a digital television broadcasting network. The company supplies leading technology, products and services to enable broadcasters and content providers to profit from digital television and associated interactive services. NDS also supplies software to secure and deliver Internet content via data broadcasting and simplify e-commerce transactions. The NDS range of systems and technology is complemented by a wide range of services, including consulting, systems design and integration, support and maintenance.

NDS customers include leading Pay-TV broadcasters worldwide. In the digital satellite television market, NDS customers include DIRECTV in the US; BSkyB in the UK; Galaxy, NetSat and Innova in Latin America; and DIRECTV Japan, STAR TV, Shinawatra Satellite, Telstra, and Sky TV New Zealand in the Asia-Pacific region. Over 15 million viewers of digital television are currently using elements of NDS supplied technology. NDS' customers provide services, using its conditional access systems and smart cards, to over 50% of the world's digital satellite subscriber base. In the emerging digital cable market, NDS customers include Cablevision in the US, Matav in Israel and Madritel in Spain.

NDS, headquartered in the UK with offices worldwide, employs over 900 people and continues to make a major commitment to R&D, with over 300 employees dedicated to pioneering development work at research centers in Israel and the UK. NDS is on the World-Wide-Web at www.nds.com. NDS' largest shareholder is News Corporation

(NYSE: NWS), a global media and entertainment company.

The statements contained in this release which are not historical facts may constitute forward-looking statements within the meaning of the U.S. Private Securities Litigation Reform Act of 1995. These statements relate to the plans, projections or future performance of NDS, which involve certain risks and uncertainties, including risk of market acceptance, the effect of economic conditions, possible regulatory changes, technological developments, the impact of competitive pricing and the ability of NDS and its commercial partners to develop systems and solutions which meet the needs of the broadcasting industry in a timely and cost-efficient manner, as well as certain other risks and uncertainties which are detailed in NDS' filings with the SEC.

Company or product names have been used for identification purposes only and may be the trademarks or registered trademarks of their respective companies.

About PictureVision, Inc.

Based in Herndon, VA, PictureVision, Inc., the pioneer in online photography since 1995, is an independently operated, majority owned subsidiary of Eastman Kodak Company (NYSE: EK). PictureVision's patented core technology provides the foundation for online digital photography services such as Kodak PhotoNet(TM) online and AOL's "You've Got Pictures"(sm) in addition to adding functionality to leading image editing software programs such as MGI's PhotoSuite(TM) and Microsoft's PictureIt(TM) and to websites including The Wedding Channel.com, eBay, and NFL.com. The company provides the imaging industry with turn-key technologies and solutions for increasing sales by leveraging the evolution to digital photography. PictureVision's premier product, Kodak PhotoNet online, utilizes its technology to offer online photosharing services for traditional film and digital camera users. Film users request the service when dropping off film for processing, while digital camera users upload pictures directly to the site. Kodak PhotoNet online users can share their photos via email, order photo lab quality prints and customized photo gifts. Consumers can also use pictures stored on Kodak PhotoNet online in partner Web sites and software packages. For more information please visit www.picturevision.com and www.photonet.com.

PictureVision can be contacted at (703) 925-1300 or (pve@photonet.com). For more information about PictureVision and PhotoNet, contact Tony DeFazio at (610) 642-8253.

Note to editors: PhotoNet is a registered trademark of PictureVision, Inc. Kodak is a trademark of Eastman Kodak Company. "You've Got Pictures" is a service mark of America Online, Inc. "America Online" and "AOL" are Registered Trademarks of America Online, Inc. All other company and/or product names are trademarks and/or registered trademarks of their respective manufacturers.

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How to share photos online:[THREE STAR Edition]

Times Union. Albany: Feb 23, 2000. pg. D.4

Section: *LIFE & LEISURE;*

Publication title: Times Union. Albany: Feb 23, 2000. pg. D.4

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Full Text (395 words)

Copyright Capitol Newspapers Feb 23, 2000

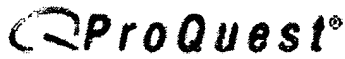
If you don't have a digital camera or scanner and want to share photos online, try one of these: Kodak PhotoNet Online ([http:// www.photonet.com](http://www.photonet.com)) -- Accessible from any one of 40,000 retailers, including Kmart, CVS Pharmacy and Rite Aid Pharmacy. Storage for 36 photos is \$5.99 for 30 days and prints are 75 cents each. Also available through America Online as "You've Got Pictures." Ofoto (<http://www.ofoto.com>) -- Allows you to share and get reprints of film and digital images. If you join before March 5, your first 100 photos are free. Seattle FilmWorks (<http://www.photoworks.com>) -- Offers free lifetime archiving once you upload your digital images or send in your film for free scanning through its PhotoWorks site. The first roll is developed for free with subsequent 4-by-6-inch prints priced at 25 cents each. Wal-Mart ([http://www.wal- mart.com](http://www.wal-mart.com)) -- Will upload a roll of film to its Web site if you order a CD or 3.5-inch disk with film developing. Without a CD or disk, you pay \$3.76 for the upload. You get 30 days of free storage for up to 100 pictures and pay a small fee for longer storage.

If you already have digital images, these sites offer a wide variety of storage and reprint options: Club Photo ([http:// www.clubphoto.com](http://www.clubphoto.com)) -- Provides free space for sharing your existing digital images, free uploading and a program to help you organize images called "Album To Go." For about \$40, Club Photo will place your image on a dozen iced cookies. Photoaccess.com (<http:// www.photoaccess.com>) -- Offers a unique service that will automatically extract the pictures from a digital camera connected to your personal computer and make high-quality prints. The first 50 prints are free. PhotoIsland (<http://www.photoisland.com>) -- Offers photo sharing and other services, among them PhotoMontage, which turns hundreds of micro-images into a pattern that looks just like your original photograph. The 36-inch poster is \$49.95. Photoloft (<http://www.photoloft.com>) -- Spices up the usual storage and reprint options with "Album of the Week" and "Photo of the Week contests." Shutterfly (<http://www.shutterfly.com>) -- Has targeted the digital market by promising 3 mm film-quality prints from images created by digital cameras. Those who upload digital images to Shutterfly.com for free storage get their first 200 prints for free. Zing (<http://www.zing.com>) -- Offers free uploading and storage, multiple photo albums, gifts and a utility for creating e-mail picture postcards from its site.

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DIGITAL CAMERAS CLICKING INSTANT ALLURE HAS FILMLESS MODELS ON A ROLL:[FINAL Edition]

BOB NORBERG Staff Writer. The Press Democrat. Santa Rosa: Aug 9, 1999. pg. D.1

Author(s): BOB NORBERG Staff Writer
 Section: BUSINESS
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Abstract (Article Summary)

"People want to get pictures in digital format immediately, they want to store pictures on the Internet and they want to e-mail them," said Michelle Lampmann of InfoTrends Research Inc., a Boston research firm. "It's still going to be a few years before they are mainstream, but sales are just starting to pick up for the general consumer."

Digital cameras already are well-entrenched in business applications, used in real estate sales, insurance adjusting and any business with a need for digital pictures. Utility companies even have a digital camera linked to a Global Positioning System to give coordinates on pictures of damaged transmission towers.

"People want to have something digital: They want digital, digital, digital," [Sean] Dennis said. But he adds that digital cameras are not for everyone. "It's much less expensive to buy a traditional camera, if all they want is to share pictures the traditional way."

Full Text (1285 words)

Copyright Press Democrat Publishing Co. Aug 9, 1999

Digital cameras are more expensive, produce lower-quality pictures and are slightly more difficult to use than their roll-film counterparts.

But because they are digital and the photos can move easily over the Internet, they're the fastest-growing part of the photographic market: 1.8 million digital cameras are expected to be sold this year and 6.8 million in 2003.

"People want to get pictures in digital format immediately, they want to store pictures on the Internet and they want to e-mail them," said Michelle Lampmann of InfoTrends Research Inc., a Boston research firm. "It's still going to be a few years before they are mainstream, but sales are just starting to pick up for the general consumer."

Digital cameras already are well-entrenched in business applications, used in real estate sales, insurance adjusting and any business with a need for digital pictures. Utility companies even have a digital camera linked to a Global Positioning System to give coordinates on pictures of damaged transmission towers.

But even if all you want is to take pictures of your child's birthday party or eighth-grade graduation, digital cameras probably are in your future.

"I fully expect that within my lifetime there will be more people using digital cameras than film cameras," said 45-year-old Alexis Gerard, publisher of The Future Image Report in San Mateo.

The attraction is that camera prices are dropping; the pictures can be viewed immediately, then saved or deleted; and pictures can be e-mailed to friends and relatives around the world or put on your own Internet photo album.

"It's good for families, who can send pictures easily to aunts and uncles across the country," said Jason Boesiger of Unruh's Cameras in Santa Rosa. "It's good if you catalog things. I know a stamp collector who cataloged his stamps that way."

"I took pictures when my daughter went to the prom, when she was all was dressed up, and by the time she came home, I had them up on the Web," said Ken Giddens of Santa Rosa, an Internet publisher.

Digital cameras, just 10 years old, are just the newest aspect to photography, which has been around since the mid-1800s in one form or another.

Sean Dennis, general manager of Shutterbug, which has two stores in Santa Rosa and one in Petaluma, said he doesn't think digital will ever totally replace film photography, but he sees the consumer buzz, the dozens of people who come in every week to ask about digital cameras.

"People want to have something digital. They want digital, digital, digital," Dennis said. But he adds that digital cameras are not for everyone. "It's much less expensive to buy a traditional camera, if all they want is to share pictures the traditional way."

Dennis said that when people inquire, the first thing they determine is the use of the camera. A \$300 digital camera will be just fine for pictures that will be e-mailed to friends and family, while a \$1,000 camera will take high-quality pictures that can be enlarged and printed.

Both digital and film photography work in similar ways, taking light in through a lens.

In a film camera, the light falls on a rectangle of film that has 18 million pixels, or light-sensitive specks that capture light.

In digital cameras, the light falls on an electronic sensor that can have up to 2 million pixels. The more pixels, the better the resolution. One million, or a megapixel, is considered the threshold for satisfactory pictures.

The camera image can be seen on a color liquid crystal display or through an optical viewfinder, like those found on point-and-shoot film cameras.

When the shutter button is pressed, many digital cameras save the image on small removable cartridges of "flash memory," which typically range from 8 to 32 megabytes in size, produced by manufacturers such as SmartCard or CompactFlash. Other cameras save the images to built-in flash memory modules, while one Sony camera uses floppy disks that can be loaded directly into a home computer.

The number of pictures per megabyte depends on the resolution -- the higher the resolution, the larger the file size and the fewer that can fit on a memory cartridge. A 32mb cartridge will hold 36 pictures at high resolution, 71 at normal and 181 at low resolution.

Once the picture is taken, the photographer can bring the images up on the LCD and delete those he doesn't want.

The pictures are then transferred to a user's computer in a number of ways. The camera can be attached by a cord to the computer through a serial port; the cartridge can be put into a card reader that is attached through a serial port, or the cartridge can be put in an adapter that allows it to be placed into the floppy drive.

Beyond the ordinary PC, Kodak is producing a \$10,000 machine that will allow the photographer to insert memory cartridges into a slot and have pictures printed automatically. Those machines are now being installed in photography shops. There also are a number of Internet sites -- www.photopoint.com, www.photoloft.com,

zing.com, clubphoto.com -- where digital pictures can be e-mailed for storage, shown off in photo albums and contests, or be made into prints.

Sony makes one of the most popular cameras on the market now because it uses a floppy disk that slips right into a personal computer, but it also has limited storage capacity -- 2 megabytes.

Many digital cameras have a zoom lens. An optical zoom lens works just like the zoom lens on a film camera, bringing the image closer. A digital camera with a digital zoom enlarges the image by using a smaller part of the sensor, which causes the image resolution to drop off.

There are a lot more buttons and knobs on digital cameras compared to most cameras, but they can be ignored and the camera allowed to operate automatically. The buttons let the operator correct color for the type of light, remove "red eye" in portraits, and adjust resolution.

Battery life is limited. When the LCD is turned on, standard batteries can run out after seven pictures, and rechargeable batteries last even less -- although they're cheaper in the long run.

Pictures can be printed, at a cost that is now slightly higher than prints for film, either on home printers or at photography shops. The quality of the highest-resolution picture is close to the pictures produced by film, but low-resolution enlargements can be very grainy.

And digital photography remains expensive. Cameras can cost \$270 to \$1,000; printers \$400; photo-quality print paper \$1 a sheet; ink \$30; batteries from \$1.99 for standard to \$60 for rechargeable batteries and a charger; memory cartridges \$28 to \$130; and card readers and adapters, \$60 to \$100.

But despite the drawbacks, the market for digital cameras is growing rapidly. InfoTrends predicts 1.8 million cameras this year, at an average price of \$658, and 6.7 million in 2003, at an average cost of \$400.

In comparison, roll film cameras have hit a plateau of 15 million units a year, according to industry analysts.

Digital is "not where film is, but it's got its uses. In 10 years, it'll be much closer to where film is," Boesiger said.

[Illustration]

PHOTO: 3 color by Chris Chung/Press Democrat CHART: b&w by Press Democrat Picture improves for digital cameras; Caption: 1. Sean Dennis, general manager of Shutterbug Camera Shops, peers into the lens as he demonstrates one of the many digital cameras on the market. 2. Some of the digital cameras on the market are the Minolta Dimage V, front, the Canon Powershot A5 Zoom, the Olympus C-2000 Z and the Fujifilm Mx-2700. 3. Digital cameras click with consumers (teaser p. A1)

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Kodak Creates Online Photo Album

Xinhua News Agency - CEIS. Woodside: May 19, 1998. pg. 1

Publication title: Xinhua News Agency - CEIS. Woodside: May 19, 1998. pg. 1

Source Type: Wire Feed

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Abstract (Article Summary)

Under a three-year alliance announced Tuesday, America Online's subscribers will be able to take conventional film to retailers on the street and have digitized copies delivered to their computer for an extra 5.00 U.S. dollars to 7.00 U.S. dollars a roll. More than 30,000 Kodak photo-finishing stores around the country are expected to offer this new service.

Full Text (199 words)

Copyright Xinhua News Agency - CEIS May 19, 1998

Eastman Kodak Co., the world's leader in photography industry, will almost strike a deal with America Online, the largest Internet service provider, to store digital pictures for 12 million potential customers.

Under a three-year alliance announced Tuesday, America Online's subscribers will be able to take conventional film to retailers on the street and have digitized copies delivered to their computer for an extra 5.00 U.S. dollars to 7.00 U.S. dollars a roll. More than 30,000 Kodak photo-finishing stores around the country are expected to offer this new service.

The service, called "You've Got Pictures!" will allow AOL customers, having surpassed 12 million, to store photos in a private, online photo album. They will be able to personalize the albums by adding captions and backgrounds and cropping or enlarging the pictures. The photos could either be downloaded or transmitted online to friends or family.

While Kodak and other photo-finishing companies have been offering electronic delivery, the deal with America Online makes the technology readily accessible.

Last month, Kodak turned to computer-chip maker Intel Corp. for help in developing and marketing a variety of digital-imaging products, notably a new line of leaner and cheaper cameras and CDs used to store images.

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SHARE YOUR PHOTOS ON THE WEB - FREE THERE ARE FREE AND EASY WAYS TO STORE YOUR PHOTOS USING THE INTERNET. AND YOU DON'T NEED YOUR OWN WEB SITE.: [METRO Edition]

Bill Husted. Orlando Sentinel. Orlando, Fla.: Mar 11, 2000. pg. E.4

Author(s): Bill Husted
 Column Name: *Personal technology Internet trek*
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Abstract (Article Summary)

But even if you don't have a personal Web page, there are free and easy ways to share your photos using the Web. There's a real advantage to this over sending the photos as e-mail attachments since - if you want to send photos to nine friends - that's a lengthy process for you, and even for the friends who must take the time to download them.

Full Text (621 words)

Copyright 2000 by The Orlando Sentinel)

Bill Husted writes for Cox News Service.

Now that digital pictures are so common, many people enjoy sharing these instant memories with friends.

If you have a home page on the Web, that's easy to do. You can either make the photos available to anyone who drops by your personal page or place them in hidden directories so that just your friends and family can see them.

But even if you don't have a personal Web page, there are free and easy ways to share your photos using the Web. There's a real advantage to this over sending the photos as e-mail attachments since - if you want to send photos to nine friends - that's a lengthy process for you, and even for the friends who must take the time to download them.

By using the Web, you upload the photos one time, and your friends can view the pictures when they have the time and the inclination.

One site that provides a free storage place for photos to be shared has a terrific name that says it all: The Digital Fridge (www.thedigitalfridge.com/). You can either post your pictures to areas called "digital fridges," where anyone can see the photo, or put the picture in a private area where a password is needed to view it. You don't need fancy software to upload your pictures, nor do your friends need it to view them. The community photo areas, by the way, are divided into categories such as family, pets, sports and work among others.

The next site is called Zing - Free Online Photo Albums, E-mail Greeting Cards and Digital Picture Storage (www.zing.com/). There are similarities with the first site, including the fact the Web site automates the process of uploading photos. This is an important service, since many novice computer users freeze at the thought of uploading or downloading information.

But Zing takes things beyond the ability of sharing your photos with friends over the Web. You also can order regular prints of your digital images at prices comparable with what you'd pay locally and create photo greeting cards using stock images or your own pictures. You also have the option of buying printed versions of your cards.

MyFamily.com (www.myfamily.com) lets you store photos on a free Web page. You'll get automated help in creating family photo albums as well as other services geared to families, such as creating a family tree. This is another free site, and it's packed with features, including the ability to share computer files as well as photos.

Like the other sites reviewed here, the money comes from advertising you'll see on the site and added services that are offered for cash. For instance, this site has a gift center where you can order family-oriented gifts.

~~Global Memories (www.globalmemories.com/) makes no bones about it: You pay to use this site as a way to share your photos.~~

~~But the reasoning - no telling whether it's a good enough reason or not - is that you also can store videos here for sharing. Videos take up a lot more space than still photographs.~~

~~For \$99 you can store five minutes of video and 10 photographs for six months. There are other price plans too. Check out the Web site for a complete list.~~

~~There also are related services offered, including video production work.~~

[Illustration]

PHOTO(2): Picture this. Internet-savvy people can share photos with friends by storing them on Zing (above). The site also offers to make regular prints of digital images or create photo greeting cards. MyFamily.com lets users store photos on a free Web page. People who utilize the site also get automated help in creating family photo albums or creating a family tree.

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DIALOG(R)File 148:Gale Group Trade & Industry DB

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**KODAK, IBM AND SPRINT TO SEND IMAGES AROUND THE WORLD AT SPEED; NEW
'HYPERCOMPRESSION' ALGORITHM.**

Computergram International, pCGN03300007

March 30, 1995

ISSN: 0268-716X LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT

WORD COUNT: 561 LINE COUNT: 00042

TEXT:

Eastman Kodak Co and its partners are predicting an explosion in the movement of images across networks, similar to that of text across the Internet. Until now, said Carl Gustin, vice-president and general manager of Kodak's Digital and Imaging organisation, efforts to speed up electronic image transfer have concentrated on providing higher bandwidths to send more data. Kodak's model bypasses this consideration, and concentrates on moving less data through the pipe. Collaborating with IBM Corp and Sprint Corp, Kodak is developing a system to send images around the world using a combination of three technologies. Kodak's Photo CD format stores images in a single file Image Pac format and enables users across a network to work with a lower resolution image that can be transmitted more quickly. Function Interpolating Transformation System, or FITS, is an image algorithm licensed by Kodak from Live Picture Inc that treats changes to an image separately from the image itself, enabling real-time editing and faster transmission. And Image Access System is Kodak's method of image management that enables users to file and retrieve images from a central repository. By adding a script based on the FITS algorithm to the Photo CD Image Pac format, any changes made to an image can be stored in a small script file and that can be transmitted independently of the image itself. If a user requires a high-resolution version of the image it can be retrieved from the central database. Kodak is attempting to make Image Pac a standard by distributing it free and will license the Image Access System to network providers for a small charge. Kodak sees the future of network imaging split into public and private image networks. The former are designed to be accessed by any user on a public network, like the Internet, while the latter is designed for business use. IBM and Kodak aim to have a commercial picture sale and distribution system operating over the Internet and the IBM Global Network by early 1996. In a similar deal, Sprint Corp and Kodak will collaborate to offer image sharing and distribution services over Sprint's fibre optic network. According to Carl Gustin, vice-president and general manager of Kodak's Digital and Imaging organisation, Sprint will be

the first network provider to offer products and services based on Kodak technology. Eastman Kodak Co has developed a "hypercompression" algorithm - the Image Verification System, IVS - to enable a person's image to be represented by a 400-bit data packet that is small enough to be stored on the magnetic strip of a credit card or as a bar code on a cheque. A decompression program in a retail terminal enables the image to be displayed while the transaction is made. A verification code is attached to other data, such as a merchant code, and it can be compared at a central data centre to detect any changes made to the card. The technology will be used in conjunction with IBM's 4690 point-of-sale systems later this year. The two companies also have agreements for standardising optical storage technology for write-once media and an expansion of the agreement under which IBM markets Kodak scanners.

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INDUSTRY CODES/NAMES: CMPT Computers and Office Automation; INTL

Business, International

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DIALOG(R)File 16:Gale Group PROMT(R)

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06993622 Supplier Number: 59161944 (THIS IS THE FULLTEXT)

Fujifilm Announces New Fujicolor CD to Complement Company's Online Photo Service - Fujifilm.Net.

Business Wire, p1268

Feb 3, 2000

Language: English Record Type: Fulltext

Document Type: Newswire; Trade

Word Count: 1113

TEXT:

Business &Technology Editors

Photo Marketing Assn. Convention

ELMSFORD, N.Y.--(BUSINESS WIRE)--Feb. 3, 2000

At this year's Photo Marketing Association Trade Show, Fuji Photo Film U.S.A, Inc. is helping to enhance the ways in which people are using their pictures by debuting the Fujicolor CD and launching a new Fujifilm.Net site. The Fujicolor CD - now available in the U.S. for the first time - incorporates a version of the popular photo editing software from Microsoft Corp., Microsoft Picture It! 2000, which makes it easy for consumers to edit and share images with friends and family. Fujifilm.Net offers a powerful, convenient and easy-to-use way for pictures to be stored, viewed and shared online.

"By forming alliances with such cutting edge companies as Microsoft Corp., Fujifilm has taken the lead in providing users with just what they want from digital imaging: greatly improved image sharing and viewing as well as easy-to-use picture editing options," said Manny Almeida, Vice President, General Manager, Digital Imaging Division, Fuji Photo Film U.S.A., Inc. "Consumers will find that compared to other competitive options Fujifilm's new Fujicolor CD and the redesigned Fujifilm.Net Internet photo service are fulfilling their needs quickly and easily."

Fujicolor CD -- Ideal for Digitized Photo Storage, Enhancement and Sharing

Designed to store images in a digitized format on a CD, Fujifilm's new Fujicolor CD offers consumers a new way to enjoy their photos and retailers, a new opportunity for increased sales and profitability. In particular, users will appreciate the ease with which the Fujicolor CD - packaged with Microsoft Picture It! Express 2000 software - allows them to access and view their images on their computers. Users can, for example, change the size of their pictures, adjust color and brightness, correct red eye, remove dust, sharpen, warp and blur images; add color

"painting" or convert photos to black-and-white. And, after saving images to a hard drive, they can be shared with groups of friends and family via email. Consumers will also enjoy the flexibility of Fujicolor CD which can be input into the Fujifilm Frontier or Fujifilm Aladdin Picture Center to obtain high quality photographic prints.

Available to retailers nationwide who own or plan to install a Fujifilm Digital Minilab Frontier 370 or Frontier 350, the new Fujicolor CD service is equally as easy for consumers to access. Photofinishing customers need only check off the "Fujicolor CD" box on the photofinishing envelope when dropping off film for processing. When the pictures are ready, consumers will receive a Fujicolor CD with their photos digitized onto the CD. From that point on, users can do virtually anything they like with the images, from removing red-eye and cropping or enlarging photos to making photo cards, calendars and collages. And, with the click of a mouse, images can be quickly and easily emailed to family and friends.

Available now, the new Fujicolor CD and Fujicolor CD service are supported by a variety of marketing materials from Fujifilm including CD sleeves and point-of-purchase leaflets and brochures.

Fujifilm.Net - Better Than Ever

With a powerful new navigation interface that speeds up the loading and viewing of consumers' password-protected snapshots and makes the process of emailing photographs simple, fast and more flexible than ever before, Fujifilm.Net offers both the perfect venue for sharing images with family and friends as well as a number of important advantages as compared to other online photo services.

The newly revamped Fujifilm.Net service, for instance, allows consumers to send digitized photos to different people - whether located around the corner or half way around the world - with one series of mouse clicks instead of tediously sending the images separately to each addressee, as can be the case with other services. Other new viewing, emailing and time-saving features include allowing users to view an enlarged version of a single photo while keeping all the other digitized images of the roll available without the time-consuming step of changing screens. Three sizes of image viewing are also available: the new thumbnail and professional resolution, along with the previously available screen resolution. And, because the new Fujifilm.Net site allows consumers to order actual photographic prints from their web-stored digital photo files, Frontier Lab System retailers have expanded opportunities to realize increased revenues.

Fujicolor CD and Fujifilm.Net Supported By Fujifilm Digital Minilabs 370 and 350

As part of Fujifilm's Total Imaging Solution, both the Fujicolor CD and Fujifilm.Net are supported by Fujifilm's highly acclaimed Digital Minilabs Frontier 370 and Frontier 350. Utilizing Fujifilm's unique solid-state laser technology, both the Frontier 370 and 350 deliver extraordinary print quality, convenience and speed. They provide retailers with the opportunity to custom-tailor an imaging system for silver halide photography as well as for a range of digital sources,

including prints from digital still cameras and digital files saved on PC cards, floppy discs, CD-ROMs and Zip(TM) disks.

The "core of connectivity," the Frontier systems are further enhanced by the addition of new, cutting edge software developed by Fujifilm to provide a truly seamless system of connectivity and digital capability including driving the new Fujifilm Imaging Controller. Utilizing IBM's(TM) state-of-the-art Netfinity 5000 server, the Imaging Controller is custom-configured to network with the Fujifilm Frontiers, the family of Fujifilm Aladdin Picture Centers and Fujifilm.Net, and to provide a powerful, fully integrated digital system that, among other things, makes possible the high-speed production of photographic prints from virtually the entire gamut of digital sources, the burning of Fujicolor CDs, and uploading to Fujifilm.Net. Plus, with built-in flexibility for growing in capacity and capability, the new Fujifilm software and Imaging Controller offer retailers an outstanding resource for growing their business by meeting continually increasing demands for expanded digital imaging products and services.

"With our new Fujicolor CD, our redesigned Fujifilm.Net service and our highly-acclaimed Digital Minilabs Frontier 370 and 350, Fujifilm is providing retailers with even greater means by which to take advantage of the profit potential of digital imaging products and services," continued Almeida. "And, with the high level of connectivity provided by Fujifilm's Total Imaging Solution, retailers and consumers alike will increasingly benefit by finding new ways to take, use and share their images."

EDITORS NOTE: for More Information On This Product Readers Can Access the Fujifilm Web site at <http://www.fujifilm.com>

Fuji Photo Film U.S.A., Inc. is the U.S. marketing subsidiary of Fuji Photo Film Co., Ltd. of Tokyo, a leading manufacturer of imaging and information products.

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01928151 SUPPLIER NUMBER: 18204879 (THIS IS THE FULL TEXT)

Photo play. (guide to image editing) (includes related articles on file format choices, resolution, fun projects to do with digitized photos)

(Technology Information)

Cryan, Shelley

MacUser, v12, n6, p88 (8)

June, 1996

ISSN: 0884-0997 LANGUAGE: English RECORD TYPE: Fulltext; Abstract

WORD COUNT: 5847 LINE COUNT: 00440

ABSTRACT: A guide to digital technology for amateur photographers is presented. Existing photos can be readily converted into computer files either with an inexpensive scanner or through a service bureau. Professionally digitized photos are usually delivered compressed on a floppy disk; the user will need a lot of hard disk space to convert them to a standard file format. PictureWeb offers a service that stores digitized photos on the World Wide Web. Many photofinishers digitize images to Kodak Photo CD format, which offers very high resolution and color accuracy. Photo CD images can take up a lot of RAM, and the cost tends to be high; Photo CD is overkill for many hobbyists. Color scanners are now inexpensive and easy to use, and most flatbed scanners offer better resolution than low-cost scanning services. Storm Software's EasyPhoto Reader is an innovative scanner that scans snapshots only. Digital cameras let users create digital images directly, often for less than \$1,000. Image-editing software is a necessity; good products for hobbyists include Adobe's PhotoDeluxe and PictureWorks' PhotoEnhancer Plus.

TEXT:

Polish your images without breaking your budget.

Are your cherished photos hidden away in dusty albums?

Or, worse, piled up haphazardly in bulging shoe boxes? Well, drag them out, dust them off, and get ready for a round of new products destined to turn your Mac into a low-cost photo shop.

The multibillion-dollar amateur-photography market has caught the attention of the computer industry, triggering an avalanche of new products and services focused on getting shutterbugs addicted to their computers.

Using a variety of these products, we scanned, printed, downloaded, and edited our own photos and found that many of the products were affordable, easy to use, and fun.

You can start getting playful with your pictures by first converting them into computer files. You can do this either through one of the many new services that have been popping up recently or by means of new, inexpensive home hardware now on the market. Once your photos have been digitized, you can then use a range of image-editing programs to turn your Mac into a virtual darkroom.

The programs we tested let you perform a variety of alterations, from salvaging underexposed or poorly composed photos to going as far as editing out an ex-spouse whom you might want, so to speak, out of the picture. Edited photos can then be dropped into specialized project software and used for personalizing a variety of everyday objects, including calendars, coffee mugs, and greeting cards.

All this photo fun is open to most Mac users, even those with 68040-based Performas packing 8 MB of RAM. But those who might become frustrated occupy both ends of the spectrum. People with relatively anemic Macs (68030-based or less powerful ones) won't have the horsepower to manipulate photos at anything faster than a snail's pace. Graphics pros, who prize versatility and demand precision in their tools, will likely be underwhelmed by the hobbyist level of the affordable hardware and software we've chosen. If you and your CPU fall somewhere in between, get ready for some photo opps.

Step 1: Turn Pictures into Pixels

Getting color photos into your computer is cheaper and easier than ever. In the short run, the least expensive route is to have someone digitize your photos for you. You'll pay for each photo but won't have to cough up funds to purchase any input hardware.

However, if you need tight control over turnaround time, you may want to consider digitizing your photos yourself. After the initial outlay for a scanner or a digital camera, the cost per scan is nil.

Full Service

If you opt to take your pics to a shop for digitizing, you still have several methods to choose from, distinguishable chiefly by resolution (see the "Pixel Perfect" sidebar), price, turnaround time, and delivery medium. Many service providers digitize photos en masse, via an automated process. Some deliver the goods on floppies, others post the images online for downloading, and yet others burn them onto CDs.

Floppy Photos. Need a 24-exposure roll digitized? How does four bucks grab you -- for the whole roll? A few photofinishing companies now offer digitizing as an option with a regular developing and printing order. When you get your prints and negatives back, sometimes in as few as two days, the envelope also contains a floppy full of photos.

But be prepared to make room on your hard disk to accommodate these large image files. In order to work with the photos on-screen, you must copy the files to your hard disk, decompress them, and convert them to a standard file format, such as TIFF or PICT (see the "Saving Grace" sidebar), using a utility provided for free by the digitizing service.

Photos-on-floppy providers, such as Konica PictureShow, are often as close as the photo drop box at your local drugstore or grocery chain. If you can't find this service locally, check out a company that works via the mail, such as Seattle FilmWorks. You'll get your floppy back, chock-full o' pics, in about a week. When time is of the essence, you can shave off a few days by downloading your pictures from Seattle FilmWorks' Web page (<http://www.filmworks.com>) at no extra charge. If you're using a 28.8-kbps modem, download time for a 24-exposure roll runs roughly six to eight minutes.

The image quality of floppy-based photos is adequate for many hobbyist-level projects, such as newsletters and personalized calendars.

Konica images weigh in at 600 x 400 pixels; those by Seattle FilmWorks have a slightly higher resolution -- 640 x 480 pixels.

CyberStorage. Floppies don't last forever, and given that image files are notorious space hogs, your hard disk tends to fill up fast. One company, PictureWeb (<http://www.pictureweb.com>), offers a solution: After digitizing your pictures, the company stores them for you on the Web. You and your designated friends can then punch in a private password to browse through your photos at any time. PictureWeb also maintains a limited site on America Online and will likely be offering full services there by the time you read this.

Beware, however: PictureWeb pages, especially those laden with a dozen thumbnails of your images, can take a minute or two to appear on your screen, even if you're using a 28.8-kbps modem. Click on a thumbnail to see a larger version of a selected image, and then download it if you want that image.

Besting the photos-on-floppy digitizers, PictureWeb offers several choices of format (JPEG, GIF), compression, and resolution (choose custom resolutions of up to 800 x 640 pixels) for downloading. Also, its top resolution choice beats out those provided by Konica PictureShow and Seattle FilmWorks. The download time for an image with the highest resolution and least amount of compression is about two minutes if you're using a 28.8-kbps modem; images with lower resolution and greater compression take less time.

Remember, however, that because PictureWeb stores images for you, you have to download only those you need for a project. The rest, as well as the originals of any images you download, stay safely in PictureWeb's Web space. You pay \$24 to store up to 100 images for a year.

PictureWeb charges \$28 to develop, print, and digitize a 24-exposure roll, but it plans to drop this price to \$12 by the time this article appears, bringing its fees in line with those of budget digitizers. (However, you'll still pay 99cents to have an individual print, slide, or negative digitized

by PictureWeb.) It also plans to team up with mail-order firm Mystic Color Labs to offer online delivery of digitized photos to Mystic's clients.

CD Solution. If you're looking for the Rolls-Royce of mass-digitizing services, you'll find it in Kodak's Photo CD. Although many average storefront photofinishers offer Photo CD service, Photo CD images are of such high resolution that even graphics professionals use them in their work. Additionally, the images are permanently stored on a durable compact disc, sparing your hard disk.

Photo CD discs each hold about 100 photos, each of which appears in five resolutions. Three of the resolutions exceed those of photos-on-floppy digitizers (up to a whopping, RAM-choking 3,072 x 2,048 pixels). The maximum resolution is decidedly overkill for hobbyist projects, but because Photo CD images are equal in quality to those snapped on 35mm film, this storage method is ideal for archiving. Plus, you don't have to archive all your photos at the same time; you can store subsequent photos on partially filled discs at later dates.

Kodak also offers a variety of low- or no-cost utilities that streamline the use of Photo CD images, optimize color accuracy, and help manage image collections across many discs. You can also easily share your Photo CD discs with Microsoft Windows devotees.

Photo CD discs may sound like the perfect storage option, but there's a dark cloud for every silver lining. If you want to keep the processing cost for a 24-exposure roll under \$30, expect a two-week turnaround. If you need one-day turnaround, cough up roughly twice that and be sure to go to a photofinisher who processes Photo CD discs on-site. (Processing of an individual print or slide costs between \$1.50 and \$3.00.) To economize, have your film developed and printed traditionally and then select only your favorite photos to put on-disc.

Do It Yourself

If you get tired of shoveling money to digitized-photo providers, consider digitizing your photos yourself. Low-cost hardware can make it happen -- with few hassles.

Scanners. Prices of color scanners have dropped, and the scanners have become easier to use. Standard flatbed scanners offer a scanning area with dimensions almost equal to those of legal-sized paper, so you can scan large as well as small photos. The maximum resolution you get from most flatbed scanners is greater than what you can get from budget scanning services, and the price is right. Scanners targeted at home users -- including offerings from La Cie, Hewlett-Packard, Apple, Epson, Microtek, and UMAX -- start at about \$400. In general, you pay more for scanners that offer higher resolution and sophisticated color-capture features.

Storm Software's EasyPhoto Reader offers an innovative twist on scanner technology. At about half the size of a shoe box, this diminutive gizmo is built to scan prints of up to 4 inches in width. Period. Unlike its flatbed brethren, the EasyPhoto Reader can't scan thick items such as books. Nor does it include sophisticated software for adjusting color values and image resolution before you scan. And you can forget about any optical-character-recognition capabilities.

Instead, the EasyPhoto Reader trades versatility for unparalleled ease of use and an attractive \$269 price. It connects via a serial port, so it's not part of a potentially fragile SCSI chain. Scanning is a one-touch operation: Stick your photo onto the tray, and press a button. The Reader grabs it, scans it, and spits it out. It requires no technical expertise on your part. Best of all, scans match the original image quite closely and the maximum image resolution, 200 dpi, tops that of digital cameras and budget digitizers.

Digital Cameras. Need the shortest-possible turnaround time? Bypass film entirely by capturing images digitally.

If your Mac has a video-in port, either built-in (as on the Power Mac 7500) or supplied via an add-in card, you can plug your family camcorder or VCR into your Mac and grab images from favorite videotapes. Or fork out \$99 for Connectix's QuickCam, a grayscale, no-frills digital-video camera that plugs into a standard serial port.

A more versatile solution, however, is to use one of the hot \$1,000-and-under color digital cameras. They offer autofocus and autoexposure, so they operate like traditional point-and-shoot cameras. Digital cameras' claim to fame: They have no film.

Instead, images are stored in the camera's built-in memory and can be transferred to your computer via a cable that connects the camera to your computer's modem or printer port. You can go from releasing the shutter to viewing your photos on-screen in literally minutes. Digital cameras generally offer you the same photo capabilities as low-cost point-and-shoot cameras, but film captures greater image detail, enabling you to pull off artistic close-up shots.

The low-end-digital-camera field is crowded these days, with entries from companies such as Casio, Apple, Chinon, and Kodak. Epson is working on one that's due out at about the time this article appears. In our informal tests, the Casio images, which have relatively low resolution, appeared grainier than most. Despite its hefty price tag of \$979 (estimated street), we especially liked Kodak's new DC50 Zoom model, which comes with a zoom lens and offers expandable storage via PC Cards (see review, May '96, page 44).

Step 2: Photo Finishing

Once your photos are digitized, the ugly truth may come out: Your pictures aren't perfect. Not everyone is an Ansel Adams or an Annie Leibowitz. Your pictures may be under- or overexposed, suffer from poor composition, or be plagued by the red-eye menace. Or heck, the photos may look fine artistically but you'd rather have Tyra Banks' or Jackie Chan's body instead of your own.

Fortunately, image-editing software gives you the means to enhance your digitized photos. Programs aimed at hobbyists sport low sticker prices as well as friendly interfaces.

You'll probably start using the programs for cosmetic touch-ups and simple formatting, such as rotating an image. If that's all you want to do, you might be content with the free file-conversion utilities that are provided by Konica PictureShow and Seattle FilmWorks and that offer very rudimentary image-editing features.

Digital cameras usually come with more-substantial software. Apple PhotoFlash, which is bundled with Apple's QuickTake 150 camera, has particularly easy-to-use controls for straightening images, cropping, and removing scratches and dust. Kodak cameras include PictureWork's PhotoEnhancer; a beefier version is available as PhotoEnhancer Plus. Both versions win the ease-of-use prize when it comes to adjusting colors, contrast/brightness, focus, and exposure. Pull up the Filter By Example dialog box to adjust, for example, the yellow-to-blue range of color values. PhotoEnhancer (as well as PhotoEnhancer Plus) then displays a section of your image repeated nine times, with varying levels of color, ranging from mostly yellow to a dominant blue cast. Double-click on the image you like the best, and the adjustment is complete.

Many of the budget image editors, including PhotoEnhancer Plus, let you make more-drastic changes. Others in this category are Microfrontier's ColorIt!; Microspot's PhotoFix; and MacSoft's PhotoMaker, which is actually a limited version of ColorIt!. All sport a large image-editing area with a menu up top and a floating toolbox.

Another program, Adobe PhotoDeluxe, offers many of the features and tools common to image-editing programs, but its approach redefines simplicity. Instead of having an image area flanked by a tool bar and menu bar, PhotoDeluxe arranges file-folder-like tabs across the top of the screen. Click on the tabs to uncover step-by-step instructions for adjusting image brightness, color balance, and more. There's also guidance for slightly-more-involved alterations, such as replacing the background of one photo with that of another, putting your head on the body of someone or something else, removing red-eye, and applying special-effects filters.

A variety of handy tools populates the average image-editing program's toolbox. Use the pencil tool to draw arrows pointing to a particular location in a photo (the grassy knoll?) or to add an inscription in your very own handwriting. Spray-paint over a busy background, or whip out the paintbrush to see what your house would look like in a different color.

It's the specialized image-editing tools, however, that can be the most fun to use. Clone tools, for example, help you cover unwanted parts of an image, such as ugly telephone wires, by letting you "paint" with colors and patterns you pick up from other areas of the image. Another convenient tool, the magic wand, enables you to select a contiguous patch of color with a single mouse click. This sure beats painstakingly outlining a section of sky you want to brighten or tracing around a head of hair you want to recolor.

Once you've mastered some of the more specialized tools, you can play with some creative cutting and pasting. Drop sections of one image into another image, creating scenes that never existed in real life. Seat yourself next to Brad Pitt, share a joke with President Clinton, or circle the globe in the space shuttle -- all on your Macintosh screen.

All the programs we used also offer funky special-effects filters. Some filters let you trace the edges of an image in black, making a sort of coloring-book version of the image. Another filter creates an embossed look. Just select a filter from a menu when your photo is open, and the

program will apply the change. If your software doesn't come with the filter you're looking for, try using a set of third-party plug-ins, such as KPT Cool Effects, by MetaTools. Plug-ins, most of which are collections of filters designed to work with Photoshop, can be used with nearly all the image-editing programs mentioned in this article, excluding both versions of PhotoEnhancer.

Step 3: Make Arts into Crafts

Edited digital photographs are the raw material for a host of fun projects. Drop them into a word processor, such as Microsoft Word, or a page-layout program, such as Adobe PageMaker, to create eye-catching For Sale signs, missing-dog posters, real-estate flyers, or family newsletters.

Painless Projects. Don't have the time or skill to design layouts?

Check out specialized software. One of the image editors -- Adobe PhotoDeluxe -- doubles as a project generator. PhotoDeluxe not only guides you through enhancing an image but also provides tab-based step-by-step instructions for completing projects with photos. Projects include colorful calendars, greeting cards, funny money, flyers, signs, and fake magazine covers.

Broderbund's PrintShop Deluxe CD Ensemble offers templates for creating posters, banners, greeting cards, business cards, and postcards, all of which can be made more personal when illustrated with photographs. Compared to PhotoDeluxe, PrintShop offers fewer projects that are specifically designed to incorporate photographs, but you can customize the terrific collection of templates and enhance them with PrintShop's ample supply of clip art.

If none of these programs has that esoteric greeting-card layout you need, you might find it in Mindscape's CardShop Plus, which offers card layouts, clip art, and suggested text appropriate for birthday, St. Patrick's Day, and get-well cards and a host of others. The interface is a bit confusing, however, making the program harder than necessary to master.

If you're not keen on making customized cards and calendars but would just like to get all those old photos out of their overloaded shoe boxes, you can use ProView's E-magine to create a digital photo album. This simple program lets you fill album pages with photos as well as with sounds and movies. You can view the pages in sequence, as a kind of slide show, or click on "hot areas" that you can set and that let you jump to preselected pages. The beauty of this program is how easy it is to use -- you can create an album in minutes.

Image Producers. For projects that require color output, check out the under-\$500 inkjet printers, including those from Apple, Epson, and Hewlett-Packard. If you want higher-quality or larger-sized output than what desktop printers can produce, consider bringing your files to a service bureau (check in the Yellow Pages under Desktop Publishing). For photographic-quality prints, ask for output on a dye-sublimation printer, which offers a richly colored, lustrous finish similar to that of a glossy photograph.

The dye-sub printers at service bureaus can output images with dimensions as large as 12 x 18 inches, but if you want photographic-quality prints you can store in your wallet, take a look at

Fargo Electronics' FotoFun! dye-sub printer. Ideal for home users, this shoe-box-sized \$499 printer is so easy to install and use that in less than ten minutes, you'll be printing your kid's best baby pictures to send to grandma. Maximum output size is 4 x 6 inches, and you have to use special paper and dye ribbons available through Fargo.

For about \$40 more, you can buy companion kits from Fargo that let you print onto label or postcard media (36 prints apiece). An additional kit, also for \$40, includes materials that let you transfer photos to four coffee mugs -- it's as easy as printing an image, securing it to a supplied mug, and then baking the mug for 15 minutes. The results are impressive; the image is permanently fused to the mug, appearing as clear, sharp, and colorful as the original print.

The Big Picture

Using photos -- your own photos -- in everyday projects is easier than ever and is no longer the exclusive purview of graphics professionals. New services and products offer myriad ways to digitize and manipulate images, at prices well within the reach of most hobbyists. And there's certainly no shortage of ways to use the images. So go ahead and, er, develop your photographic talents. There are no negatives: It's a snap.

Shelley Cryan is a MacUser contributing writer with a photographic memory. Unfortunately, it doesn't always develop.

Just a Click Away: PhotoEnhancer, and its beefier sibling, PhotoEnhancer Plus, provide a quick and easy way to fine-tune your images. Here, you'd just look over the color choices that were presented to you and click on the one you liked best.

Presto Chango: Your friends may think you slaved all day stylizing your image, but you know that it took only one or two mouse clicks in your image-editing program. Just pick your favorite special-effects filter, and watch as your image goes from ho-hum (A) to artsy (B). Many image-editing programs also accept third-party add-on filters, such as those provided in KPT Cool Effects, from MetaTools (C).

Saving Grace: In a TIFF over file-format choices?

When saving images to disk, you need to decide on a file format. Sometimes you may not have a choice -- the program in which you plan to use your images may accept only a certain format -- but usually you've got some latitude. Also, some formats offer compression options, which make it easier to fit images on floppies and conserve hard-disk space. Here are some common formats and compression schemes:

EPS

(Encapsulated PostScript)

EPS is the only format that supports the use of clipping paths, which allow you to create irregularly shaped images, as opposed to only rectangular and square ones. However, stick with the TIFF or PICT formats if your final output will be to a non-PostScript printer.

GIF

(Graphic Interchange Format)

If you plan to post your images online, GIF is a smart bet, because its relatively small file size allows images to transmit quickly over the Internet. This format is a poor choice for most other uses, however; because GIF files are limited to 256 colors, details and color quality suffer.

JPEG

(Joint Photographic Experts Group)

Because of its very small file sizes, the JPEG format is another good choice for images transferred via modem or for those crammed onto a floppy disk. JPEG is actually a compression scheme that throws away data to save space -- called a "lossy" scheme -- so you'll notice image degradation if you opt for a high level of compression. At lower levels of compression, however, picture quality remains accurate.

PICT

(not an acronym)

Files in this very common bitmapped format are often used for on-screen presentations, because of their relatively small size. Avoid using PICT as a file format if you need to color-separate your output or if the image contains PostScript text or graphics--with PICT, what you see on-screen is not always what you get on paper.

TIFF

(Tagged Image File Format)

Images in this format are high-resolution and bitmapped. As a rule of thumb, TIFF files work well for the printing and on-screen display of photographic images. You can reduce the size of TIFF files by using the LZW (Lempel-Ziv-Welch) compression scheme, which some programs may offer as an option. Unlike other types of compression, LZW maintains image quality through a so-called "lossless" scheme, which compresses images without throwing away any data.

Pixel Perfect: Focus in on resolution

Be you amateur or professional, if you're going to be working with photos on your computer, you should understand the costs and effects of resolution. Images with high resolution show off sharp details but also take up more space on your hard disk than low-resolution, less visually exact images. They also usually cost more to digitize. In order to save yourself some time, money, and hard-disk space, you should figure out the resolution you really need for your project.

But before you can do this, you'll probably want to understand the ways of measuring resolution. When you're using digitizing services or digital cameras, you'll find resolution expressed in terms of pixel dimensions, which measure the long and short sides of a rectangular image. Seattle FilmWorks' digitizing service and the Apple QuickTake 150 camera, for example, both provide images at a 640-x-480-pixel resolution.

If you're working with scanners, on the other hand, you'll usually hear about resolution in terms of dots per inch, or dpi. Storm Software's EasyPhoto Reader, for example, maxes out at 200 dpi, which is considered on the low end of today's scanner capabilities.

To compare dpi with pixel dimensions, multiply your photo's original measurements by the photo's scanning resolution to get the total number of pixels for each dimension. A 4-x-6-inch print scanned at 200 dpi would measure 800 x 1,200 pixels. Work backward to figure out dpi from pixel dimensions. Crank through the mathematics, and you'll quickly see that even the lowest-resolution desktop scanners can provide higher-resolution images than most value-priced digitizing services or digital cameras -- as long as your scanned print is at least 4 x 6 inches.

But will your digitizer of choice provide the resolution you need? More to the point, what resolution do you need? Pick one that's too low, and you'll get jagged, coarse images. Pick one that's too high, and your Mac may not have enough RAM to handle it. Even if it does, an image with a higher resolution than you need will cause your computer and printer to grind away needlessly, and you'll waste hard-disk space storing mammoth files. A 640-x-480-pixel color image takes up just under 1 MB, for example, and a 1,200-x-1,800-pixel color image occupies more than 6 MB.

The resolution you need depends on your final output. If you are a hobbyist, final output is most likely on either your screen or a color inkjet printer. If you plan to output to screen, you'll need to scan your image at your monitor's resolution. You can find out your monitor's pixel resolution by clicking on the Options button in the Monitors control panel.

However, if you plan to print to a desktop color inkjet printer, you'll probably need a higher resolution. Say you've got a 360-dpi color inkjet printer and you want to use it to print a photographic image. Scan the photograph at 360 dpi, right? Wrong. That'd be too easy.

The bad news is that printer resolutions aren't equal to scanning resolutions. The good news is that it's easy to figure out what you need. Here's a handy tip: To figure out the scanning resolution needed, divide the printer's resolution by 3. You'll see that your 360-dpi color inkjet printer can make use of the information in a 120-dpi scanned image. (FYI, according to our handy math, a 4-x-6-inch image scanned at 120 dpi will have a resolution of 480 x 720 pixels.) There's some leeway, so experiment a bit to find the resolution that looks best to your eye. You may find you can get away with a somewhat lower-resolution image, but increasing the resolution drastically isn't going to improve the image quality.

The bottom line? If you're outputting to screen or to a low-end inkjet printer, a budget scan or a low-end digital camera will provide ample resolution -- much of the time. But there's a catch. The math works only if you're using your images at their original size or smaller. If you plan to enlarge your images, you'll benefit from the higher resolution attainable from scanners, service bureaus, and Photo CD.

Say you've got a budget scan of a group shot taken from afar and you want to isolate and enlarge one of the faces to decorate the front of a card. When you blow up the face, however, the image becomes jagged and blurry. Why? Because the pixels that comprise the face are now spread over a larger area, effectively reducing the dots per inch (think of how images printed on a balloon get grainier as you blow up the balloon).

In effect, you need to start out with a higher resolution to end up at your target resolution for the final, enlarged image. This is when you'll need to seek out higher-resolution options, because images from low-end digital cameras and photos-on-floppy providers will fail you.

Photo Fun

4 photo projects in under an hour apiece

You've digitized your favorite photos, rubbed out the red-eye, and fooled around with a slew of special effects. But where do you go from there? If you're short on creative ideas for outputting your artwork, take a look at the following four projects to get ideas for personalizing flyers, calendars, coffee cups, and postcards--each in under an hour.

Project: Real-Estate Flyer

Tools: Image-editing software, Adobe PhotoDeluxe

Step 1: Digitize a photo of a property, using one of the many options mentioned in the main article. Then convert the image to a TIFF file.

(Shown here is the image we used.)

Step 2: Open your file in an image-editing application such as PhotoEnhancer Plus, in which you can crop and touch up your image. We used the clone tool to paint over the antenna on the roof and also to remove the traffic sign that blocked part of the house's front door.

Step 3: Open your image in PhotoDeluxe, and select the Flyer icon, which brings up step-by-step instructions for creating flyers. Early on, you should choose a template and establish placeholders over which you can add the photo and descriptive text. In our example, the For Sale headline was already in place and colored, as was the background gradient. The flyer is now ready for output on a color inkjet printer.

Project: Calendar

Tools: The PrintShop Deluxe CD Ensemble, image-editing software (optional)

Step 1: If necessary, touch up your photo with an image-editing program. You might want to crop it, replace the background, or remove unwanted items.

Step 2: After launching PrintShop Deluxe, you'll see a handful of project options. Select Calendar. Succeeding screens will ask you to specify your calendar's dates and either a wide or tall orientation.

Step 3: Next, you're asked to select from among dozens of backgrounds and then from a handful of layouts. Make sure you pick a layout that leaves enough room for a photo -- not all of them do.

Step 4: PrintShop Deluxe creates the calendar to your specifications.

After the calendar appears on-screen, select File Import to pull in your favorite photo (PICT or EPS format only). Position and/or resize the photo. If you like, add text and graphics to highlight important dates. Then you're ready to print!

Project: Photo Mug

Tools: Image-editing software, Fargo FotoFun! printer, Fargo Mug Kit

Step 1: Use an image-editing application such as ColorIt! to touch up your original photo. In our example (left), we cropped and resized the image to fit on a mug. We then used the clone tool to paint over dust spots and to create a more festive effect by replacing the ugly lamp in the background with Christmas-tree branches. We also fixed the children's red-eye problem by selecting the red pupils with the magic-wand tool and then pouring in black paint with the paint-bucket tool. Finally, we used the text tool to write 1995 (right).

Step 2: Print your image on the Fargo FotoFun! dye-sub printer, using the printer settings recommended for coffee-mug transfers.

Step 3: Secure your printout to a supplied coffee mug, using tape and the special clamp. Bake the mug in an oven for 15 minutes, and cool it in warm water for 2 minutes. Then remove the clamp, tape, and print, and your mug will be ready for a hot cup of coffee.

Step 4: We selected the Brightness icon and lightened the darker parts of the horse -- the neck, legs, and tail -- to make them easier to see. We then clicked on the Text icon to add text and a drop shadow for the text (see below).

Step 5: We printed the file on the Fargo FotoFun! dye-sub printer, using paper supplied in Fargo's postcard kit. The final product was a glossy, photograph-quality postcard suitable for mailing.

Project: Postcard

Tools: Adobe PhotoDeluxe, Fargo FotoFun! printer, Fargo Postcard Kit

Step 1: Our original photograph of the carousel horse was unimpressive, especially with the red fence marring the composition. We saved an extra copy of the image.

Step 2: We selected PhotoDeluxe's Motion filter to distort the image and to add the illusion of motion to the horse.

Step 3: We returned to the copy of the original photo and clicked on the Change Background icon. PhotoDeluxe then stepped us through the isolation of the horse that we wanted to keep and its placement in the photo we had distorted with the motion filter.

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Telepix Imaging Heats Up Photography Market With Digital Imaging Solutions

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Products targeted at home, retail, corporate and industrial markets

TORONTO/COLOGNE, Germany, Sept. 16 /CNW/ - If a picture is worth a thousand words, then Telepix is going to write a new chapter in the history of digital imaging with, as their trademark promises, "Pictures. Anytime. Anywhere." The launch of Telepix's wide array of digital imaging products signals the beginning of a new era for home PC users, retail photo finishers and corporate enterprises. Telepix is the first contender in the digital marketing forum to offer a comprehensive set of coordinated digital imaging products customized to suit the individual needs of each target audience. "Everyone is catching on to the incredible power that the digital medium offers - going beyond capturing photos digitally, to enhancing them in creative ways, and sharing them with friends and family via the Internet and retail partners' facilities around the world," said Karl Kenny, president of Telepix Imaging Inc. "Our digital imaging solutions give retailers the means to capitalize on this growing market and grow in accordance with it, driving traffic to their stores and providing them with extra sources of revenue." ~~The Telepix products, announced today include: Telepix Factory(TM) - A digital photo production solution for photo finishers and retail minilabs that includes both PC hardware, software and the benefits of network connectivity. Combining a comprehensive array of features with an intuitive, easy-to-use interface, the software works with virtually any media type to let photo lab technicians produce high quality, affordable digital photo products for their customers. These include photos on floppy disks and CDs, high resolution scans, index prints, high quality digital prints and enlargements, photos on the Internet, and photo gifts and merchandise.~~

Telepix Photo Network(TM) - The only photo network to ~~offer true exclusivity to the~~ retailer, the Telepix Photo Network gives retailers the means to establish and maintain closer ties with their customers by offering truly useful, desirable services and products. The Telepix Photo Network ~~lets people easily organize and share their digital photos, as well as view and download digital rolls of film that are scanned by photo finishers and upload digital photos they capture themselves using digital cameras and scanners.~~ Once their photos are on the Telepix Photo

Network, people can also order prints, enlargements, personalized photo gifts and products and enjoy the benefits of FotoClub's online photo archive services. Telepix PhotoStation(TM) - This touch-screen kiosk is the affordable nucleus for a retailer's entire digital photo service. Telepix PhotoStation is scaleable to meet both the current and future needs and budget of the retailer while allowing for continuing developments in digital technology. It lets people easily perform digital enhancements as well as make prints and enlargements from photos, negatives, slides and digital sources - and it's the only photo kiosk on the market that lets customers work seamlessly with their images from a photo network as well as the Web. Using extensive network connectivity technology, Telepix PhotoStation offers retailers the flexibility of using their own or independent service facilities to produce restorations, photo gifts and decor items that can dramatically increase their profitability compared with other products on the market. Telepix FotoPoint/Studio(TM) - Supporting more than 50 file formats, FotoPoint/Studio gives people all the tools they need for managing their collection of photos and enhancing their pictures. Using an "Image Workspace" interface, FotoPoint/Studio lets people organize their pictures into easily understood "albums" and perform photo enhancements and dazzling creative effects with click-and-go ease. FotoPoint/Studio also offers seamless integration with e-mail, the Internet, Telepix Photo Network, Telepix PhotoStation kiosks and photo gift production services. This promotes increased interactivity between photo finishers and their customers and increased revenue potential for retailers.

Telepix Pro(TM) - A scientific image management software solution aimed at the industrial medical and research communities. Telepix Pro integrates text and images for research organizations and can shorten the diagnostic cycle time. It has proven ideal for use in scientific imaging applications that focus on image storage and retrieval applications. Telepix Pro Solutions range from affordable entry-level imagers to high-end, state-of-the-art systems that open the door to new leading-edge applications, all linked through network connectivity.

Photo Central(TM) - An image management solution for law enforcement and public safety organizations developed to make it easier to find images, share timely information and solve crimes faster. Photo Central enables law enforcement agencies to create and access distributed image archives. The product lets law safety officials capture digital images, then transfer them to a computer for display, analysis, storage, electronic transmission or printing. A proven law enforcement aid, the software is currently used by the Royal Canadian Mounted Police, the Metropolitan Toronto Police, and the Ontario Provincial Police, among other North American law enforcement agencies

. Telepix Imaging: Technology Differentiators - Easy to use solutions, with an elegant user interface that offers simplicity and power for any user - Telepix Photo Network is the only photo network available to retailers for exclusive ownership, branding and imaging - Many of Telepix's solutions include the company's proprietary image compression, FotoSnap(R), which allows for the fast retrieval and transmission of images across the Internet or photo network, and reduced storage requirements, without the loss of image quality - Telepix solutions complement a user's existing image editing software and hardware. Telepix FotoPoint/Studio is the perfect tool for any editing task, but will look for and integrate with any previously installed imaging software such as Adobe PhotoDeluxe and PhotoShop, MGI PhotoSuite, etc. Similarly, Telepix Pro, Factory, PhotoStation and Photo Central can integrate with nearly any existing hardware and software to make them even more productive and affordable to implement Telepix Imaging Inc. is based in Toronto, Ontario, with software development facilities in St. John's, Newfoundland. Chosen in 1997 as one of the "Top 25 Up and Coming Canadian Technology Companies" by The Financial Post, Telepix was founded and is run by leaders in the development of digital imaging solutions for end-users, corporations and photo finishers. The company's management team includes talented engineers who were responsible for developing numerous technology solutions, as well as former executives at Eastman-Kodak, Ritz Camera, MGI Software, and Black's Photo. Together, the Telepix team has a deep understanding of the North American and international digital imaging and photo retailing markets. More information about Telepix and its products can be found on the World Wide Web at <http://www.telepix.com>. FotoSnap is a registered trademark and Telepix, Telepix Factory, FotoPoint, Telepix Pro, Photo Central and FotoPoint Studio are trademarks of Telepix Imaging Inc. All other trademarks and registered trademarks named herein are the property of their respective companies. /NOTE TO EDITORS: IF YOU WOULD LIKE TO EVALUATE ANY OF THE PRODUCTS MENTIONED IN THIS RELEASE, THE FASTEST ROUTE IS TO CONTACT BENCHMARK COMMUNICATIONS AT THE NUMBER INDICATED BELOW./ /For further information: Editorial Contacts: Kyle Hall, Telepix Imaging Inc., (905) 278-8341, [khall\(at\)telepix.com](mailto:khall(at)telepix.com); Ali Philips, BenchMark Communications Inc., (416) 423-6605, [alisonp\(at\)benchmarkpr.com](mailto:alisonp(at)benchmarkpr.com)/ 09:11 ET

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Web-Based Services Offer Many Options for Digital Camera Owners

Julio Ojeda-Zapata

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Digital cameras used to be gee-whiz gizmos with one glaring drawback: what to do with your photos once you shot them?

Sure, putting them on Web pages and sending them as e-mail attachments is fun, but nothing compares to the pleasure of prints you hold in your hands, put in scrapbooks and swap with friends and relatives.

Ah, but converting your digital images into prints was no picnic. You needed a cutting-edge printer to get top-quality snapshots. Then you had to stock up on inkjet cartridges and photo paper at all-too-frequent intervals. And think of all the work involved! What a hassle.

Now you can forget all that. With a few mouse clicks, you can transfer your digital photos to one of several Web-based services that will promptly churn out high-quality prints and mail them to whomever you choose. Printer manufacturers must be quaking in their boots.

Digital-photo services don't charge much more for prints than your local film-processing lab, but their sites offer lots of extras. With a few more clicks, you can create online "albums" for your loved ones to peruse on their own computers and enhance with guestbook entries.

Even those who use conventional 35-millimeter cameras will benefit from such services if they use a scanner to digitize their most-cherished snapshots, then upload the electronic images. They will enjoy the same online-sharing features as their digital-camera cohorts.

Sites such as Ofoto, PhotoAccess and Shutterfly had little reason for existing a few years ago because consumer-grade digital cameras were relatively scarce and incapable of producing snapshot-quality images.

But such cameras are proliferating and taking ever-better pictures. Camera sales are projected to mushroom from an estimated 4.7 million units in 1999 to 22 million units by 2003, according to the International Data Corp.

Most digital cameras sold in coming years will be "megapixel" devices with high-resolution imagery that looks appealing on photo paper. A 1-megapixel camera produces a digital image with 1 million dots called pixels, just enough for a pleasing print. These cameras typically cost less than \$400, and 2- and 3-megapixel cameras will soon become affordable, too.

Because megapixel image files are large and awkward to manage, many consumers will love the convenience of a Web-based digital-photo service that automatically resizes and organizes their pictures for on-screen display.

Privacy-conscious shutterbugs will like the ability to control who sees their photos. The sites use passwords and other security measures to keep private photos private, unlike Web pages that are generally open to everyone.

Which service is right for you? To answer that question, we put six digital-photo sites through their paces. We uploaded dozens of pictures, organized them into albums, ordered prints and scrutinized the snapshots that arrived in the mail.

We'd like to say we found one site that overshadowed all the rest, but all showed strengths and weaknesses. Some made file uploading easy while others excelled in online-album design or print-order-processing. A near-perfect digital-photo service has yet to emerge, we're sorry to say.

Club Photo (www.clubphoto.com):

Uploading options: Living Album software (Windows only) organizes your photos for batch uploading. An Adobe-compatible i.Share plug-in (Windows and Mac) uploads directly from such programs as Photoshop and ImageReady, too. But the service's Web file-browsing interface uploads only one photo at a time.

Viewing and sharing:

Club Photo's spare site design makes it reasonably easy to use. Creating albums is a snap, and album titles are put on an easy-to-scan menu for future access. Click buttons to enlarge images, navigate through an album, start a slide show or send e-mail inviting others to view your photos.

Print services: Ordering is too difficult here. Photos must be added to an online shopping cart one by one, which is a frustrating and time-consuming process. The alternative, a clunky Photo Board system for gathering pictures prior to ordering, was marred by crippling malfunctions when we tested it.

Print quality:

We sent in only one photo for processing because of the difficulties described above. Our prints are sharp but a bit too muddled.

Site extras:

List your public albums by theme or topic on a Yahoo!-like directory. For owners of Palm organizers, Club Photo provides an Album To Go service that is supposed to convert photos into

a Palm-friendly format for viewing on such a device. We didn't test this feature, so we can't vouch for its reliability.

The upshot: A possibility for Palm nuts and those who don't mind installing and mastering new software. Also a good bet if you want to show your digital snapshots to all comers, even complete strangers. But good luck ordering prints.

Ofoto (www.ofoto.com):

Uploading options:

Use a Web file-browsing interface to simultaneously transmit up to 10 photos with ease. Or download OfotoNow software (Windows only) so you can crop photos and remove red-eye, then transfer pictures to the Ofoto site in batches. The program is still in test form, but it's among the best.

Viewing and sharing:

Click a notebook-shaped album to see pictures in a gallery or slide-show format. Click buttons to move photos or to enhance their appearance. Site design is first-rate. To give others album access, send e-mails with links. But some visitors may object to Ofoto's mandatory sign-up policy.

Print services:

Ordering prints in batches is reasonably easy. Ofoto saves recipient information and makes print-format recommendations based on the sizes of your digital images. Too bad it doesn't save credit-card information, as well.

Print quality:

Superb. An index print is included.

Site extras:

A convenient photo-framing service.

The upshot:

A good choice for sharing photos online and obtaining superb-looking prints, which are the two main reasons for visiting such a site.

PhotoAccess.com (www.photoaccess.com):

Uploading options:

Excellent PhotoStreamer software (Windows and Mac) yanks photos off a digital camera or hard drive and uploads the shots in batches. But the Web file-browsing interface uploads only one photo at a time.

Viewing and sharing: Pick an album from a list on the main page, then click buttons to rotate photos, launch a slide show and move pictures between albums. Pages are logically organized but unsightly and sometimes slow to load. To share your albums, request Web links that you then e-mail to others.

Print services:

Order prints individually or in batches, all from one convenient screen. But the site doesn't store data for multiple recipients.

Print quality:

Nice image quality, but some pictures have long scratches.

Site extras:

Stick your pictures on aprons, t-shirts, mouse pads and more.

The upshot: An otherwise powerful service is marred by poor aesthetics and sometimes sub-par performance limited Web-uploading features.

PhotoLoft (www.photoloft.com):

Uploading options:

Upload Client software (Windows only) is supposed to facilitate batch transfers, but the software is glitchy and amateurishly designed. The site's Web-uploading interface handles only one photo at a time, moreover.

On the up side, users can transfer multiple photos to the site as e-mail attachments.

PhotoLoft supports five common graphic-file formats, including GIF and Windows bitmap, unlike most other sites that only accept JPEG files.

Viewing and sharing:

Click an album to open it, and click a photo thumbnail to view a larger image. Then, Zoom in and out, crop the picture and move it around. A browser plug-in (Windows only) adds more image-handling capabilities. To share your photos, send an e-mail with an album link.

Print services: Ordering is time-consuming because photos must be added to baskets one by one. But PhotoLoft, like Ofoto, makes good format suggestions and even asks if small pictures should be "zoomed" to match standard print dimensions. ("No" is often the best answer for good prints.)

Print quality:

A Jan. 11 order had not arrived when this article went to press over the weekend. PhotoLoft did not respond to an e-mail query.

Site extras: Print a high resolution with special software. Put photos on cards, gifts and clothing. List your albums on a Yahoo!-like directory. Grab HTML code for displaying your photos on your own Web page or on an auction site.

The upshot: Good for amateur Web publishers, online-auction enthusiasts and those who like sharing their photos with the whole world. But print ordering should to be made much easier, and the uploading software needs polishing.

Shutterfly (www.shutterfly.com):

Uploading options:

A browser plug-in (Windows and Mac) allows for drag-and-drop uploading, which means multiple files can be transferred with one mouse swoop and click. But the file-browsing interface uploads one file at a time.

Viewing and sharing: Use a pull-down menu to select an upload date, then click to scroll through your photos. Or click "view all my photos." Sharing is easy with an "envelope" system that handles multiple recipients simultaneously. Visitors sign in with a temporary password and are registered as members.

Print services: Create envelopes for yourself and other recipients, then access multiple envelopes when ordering prints. Add comments to the backs of the pictures. Paying for your prints is easy because you aren't asked to fill in your credit-card info every time you order -- this site has transactions down to a "T".

Print quality:

Good. An index print is included.

The upshot:

A well-designed service that is marred only by limited Web-uploading capabilities and one major annoyance -- our two Windows browsers were automatically resized to a full-screen format every time we visit the site.

Zing (www.zing.com):

Uploading options:

Upload multiple photos as e-mail attachments, via a Web interface (up to 36 shots can be submitted simultaneously) or using a Web drag-and-drop interface that is essentially identical to Shutterfly's version.

Viewing and sharing:

Click to see pictures in your various albums or an inbox containing unfiled photos. Shots can be viewed in three sizes and sent as electronic cards called ZingCards. To share albums, send an e-mail with a link.

Print services:

Ordering is straightforward but a bit too click-intensive. Zing needs to simplify, simplify, simplify, or its customers will go elsewhere.

Print quality: Same photo-processing facility used by PhotoAccess. Nice image quality, no scratches.

Site extras:

Add your photos to a ZingViewer screen saver. List your public albums on a Yahoo!-like directory. Rate the albums and photos of other Zingers. Grab HTML code for showing your Zing photos or albums on any Web site. Use the home-printer feature to output your photos in a variety of sizes. Plaster your pictures on mugs, watches, greeting cards and cookies.

The upshot: Good for amateur Web publishers, screen-saver lovers and those who want to put their photos on public display. Zing offers a swell range of uploading options but stumbles in the print-order-processing department.

As we said earlier, none of the digital-photo sites in our roundup excelled in all areas. A perfect service would include the following:

No-hassle uploading.

Zing scores by taking multi-picture uploads as e-mail attachments and via its file-browsing and drag-and-drop interfaces. Others match some but not all of these capabilities.

Well-designed uploading software for those who want that. Winners: PhotoAccess' PhotoStreamer and Ofoto's OfotoNow. We also like Club Photo's i.Share plug-in for Adobe programs.

Effortless viewing and sharing with albums that are easy to find and peruse. Ofoto provides near-flawless album design while Shutterfly offers the most flexible photo-sharing system.

Painless print ordering. Shutterfly excels in this category by remembering credit-card numbers and recipients, and by letting users designate two or more recipients during any transaction.

High-quality prints. In a tight race, Ofoto wins by a whisker with prints that are extra-vivid and scratch-free. Our judging was based on five sets of prints because PhotoLofts' were MIA.

Site extras. Most of the services provide bonuses of one sort or another, but PhotoLoft and Zing stand out with imaginative photo-viewing, home-printing and Web-publishing enhancements.

Julio Ojeda-Zapata, who covers personal technology, can be reached at ojeda@pioneerpress.com or (651) 228-5467.

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DIALOG(R)File 20:Dialog Global Reporter

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DISCOVERIES: Kodak DC 240: Digital camera with conventional feel

ASIA COMPUTER WEEKLY

July 05, 1999

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ACW reviews two digital imaging products: the Kodak DC240 camera and the Epson Stylus Color 900 printer.

Kodak DC240

First generation digital cameras did not go beyond trying to act as cameras without film, relying on special effects to come from bundled software. The 1.3 megapixel Kodak DC240 adds features and yet feels like a real camera. As with conventional digital cameras, the DC240 has a power-on switch; sports a LCD screen to preview and review photographs taken; has a Compactflash slot for the memory cards which store the photo, and a port which connects it to the computer.

In addition, there is true 6X zooming capability, rather than a digital zoom; a port for AC power, so that users need not worry about the typically short battery life; and a video-out port, so that pictures from the camera can be viewed directly on the television.

At the same time, the camera has features found in the better conventional autofocus cameras today: a choice of flash modes, including red-eye; a 10-second self-timer; macro and landscape focus, and a zooming function graduating between wide angle (117mm) and telephoto (39mm).

User-friendly features include a dial with four modes: capture, review, connect, and setup, covering the four main functions of a digital camera. A menu button at the top left corner of the LCD screen provides additional features on-screen, while the up, down, and "do-it" buttons to the right of the screen allow the user to navigate and choose from the menu. Left and right buttons at the bottom the screen page through the photographs taken in sequence.

The camera requires the bundled Kodak Picture card to be inserted before it can take pictures.

Locating and inserting the Kodak Picture card, which conforms to the Compactflash standard, and the batteries were simple. The camera was then switched on with the mode dial on "setup", and the LCD screen provided a menu of configuration, such as setting the time and choice of special effects.

Further menus are available when pressing the menu button under the other modes.

The mode dial was then turned to "capture" and several test pictures taken (top right). The camera allows a live video-type preview of the scene, as well as an immediate review of the snapshot through the "Quickview" feature.

All of our pictures were taken at the highest resolution, and at the "best" quality setting, allowing three images per MB to be stored at a time. The camera offers high (1280 x 960) and low (640 x 480) resolutions. Leaving the camera to adjust automatically for lighting conditions gave very good results, but the DC240 allows enthusiasts to adjust specifically fluorescent, tungsten or daylight (outdoor) lighting as well.

Review Feature

As with other digital cameras, recently taken photographs can be viewed and discarded if they are unacceptable.

With the DC240, the mode dial has to be turned to "review", and the LCD screen will display the most recently taken picture. Users can use the left and right arrow buttons to view older pictures.

Beyond this standard function, pressing the menu button at this time will display the Review menu, which includes options like viewing pictures three at a time through the "filmstrip" feature, or magnified at twice the normal size. At this time, pictures can be deleted, or protected from deletion.

When at a Kodak Picture Kiosk, this menu also holds the key to printing thumbnails, and marking pictures for printing and editing.

According to Gladys Ngai, regional marketing manager, Digital Applied Imaging, Greater China Region, Kodak, there are 143 "Picture Maker" kiosks in Hong Kong. "Customers can bring their Kodak Picture cards and ask for output. Each A4 size print out costs about HK\$60 (US\$7)," she said.

Kodak provides several applications with the camera for capturing, enhancing, and organising images on both Macintosh and PC platforms. Each application provides online help, and Kodak itself offers support at www.kodak.com.

To transfer the pictures, select the appropriate cable, and connect the camera to the computer. The cables were labelled at each end, so there was no guesswork involved. A serial connection is provided for the older Macintosh and PC machines, while USB is also supported. In this case, the camera was connected via USB to a Pentium MMX Sharp A-150 notebook running Windows 98 and 64 MB RAM.

Verdict

While the camera is targeted at both business and general users, beginners may be overwhelmed by the different features and the multiple buttons that have to be pressed to achieve different effects.

But put the HK\$4600 (US\$593) DC240 in the hands of someone who is familiar with a mid-range autofocus camera with zooming capabilities, or who has used digital cameras before-and they may not need another camera for a long time.

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Start-Up Firms Jump into Digital-Photo Processing Market

Roger Yu

KRTBN KNIGHT-RIDDER TRIBUNE BUSINESS NEWS (SEATTLE TIMES - WASHINGTON)

February 24, 2000

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In the burgeoning world of digital photography and its gadgets, the all-so-retro photo prints are becoming hip again, thanks to a flurry of start-ups that have found the niche and gone live in the last quarter.

The companies, which include Seattle-based PhotoWorks, are attempting to fill a market created by the growing number of digital photographers who are finding that relatives without computers still want to see the baby girl on film-quality picture prints.

Until now, digital-camera owners had little choice but to leave the images on their hard drive or print them out on their ink-jet printers, whose images are blurry, nonarchival and, ultimately, unsatisfying.

The digital technology is responding by taking a step back to feed the demand that's been brewing while the popularity of digital cameras and online photo storage continues to bloom. Again proving that no unique cyber-ideas can remain unique, more than 10 start-up companies launched their businesses last to some 2.3 million digital-camera users in the U.S., according to Lyra Research.

PhotoWorks, a traditional photo lab formerly known as Seattle FilmWorks, introduced the service last month, while PhotoAccess.com, Shutterfly.com, Snapfish.com and Pfoto.com, to name a few, launched their sites recently.

Producing quality prints from digital images may be conceptually intuitive but, until now, has lagged. But its emergence says volumes about the digital-imaging market -- that such an intrinsic service was overlooked in the name of the latest thing and that, ironically, it took the merging of digital-technology advances and a decline in camera prices for the print market to be served.

The process is simple: Plug the digital camera into a computer and send the image to a processor's Web site. Once an order is made, the company will touch up images, print them on photo-quality paper and mail them to the customer in about a week's time. A 4-by-6 print costs

about 50 cents. In comparison, a 24-exposure roll of 35mm film costs about \$4 to develop and print, significantly cheaper.

"We're solving the shoe-box problem," said Gene Wang, founder and chief executive officer of PhotoAccess.com, a Silicon Valley start-up whose Seattle office maintains the site. "We're on a Moore's Law type of curve in digital cameras," he said, referring to the principle expounded by Gordon Moore, one of the founders of Intel, to project the accelerated growth of computer processing.

Not only are these companies counting on fast growth, but the digital photofinishing market is projected to be sizable.

A joint market study conducted by Lyra Research and Photo Finishing News estimates that the online photofinishing market -- including digital and scanned film-based images as well as prints made on T-shirts, mugs and other souvenir imprints -- will generate about \$413 million this year, compared with \$112 million last year and \$9.7 million in 1998.

Lyra analyst Steve Hoffenberg said about \$20 million of the total business in 1998 came from digital-camera owners looking to print images. This niche market should grow to about \$760 million by 2002, he said.

"There's room enough for a lot of companies to succeed," Hoffenberg said.

Projections from industry-tied research firms are invariably optimistic, but a host of dot-com start-ups are betting that the nostalgia of hand-held pictures, unlike their image files, will not fade.

PhotoAccess, whose executive circle includes digital-camera pioneer Mammad Safai, rolled out PhotoStreamer last year, an in-house application for uploading digital images to its servers, and is working on a camera with built-in "Internet connectivity," Wang said. Although he wouldn't elaborate, he said the camera would not depend on a PC for uploading images.

Shutterfly.com launched its site in June after founder Eva Manolis discovered she couldn't send quality prints of her newborn daughter to her mother. The company has since grown to about 80 employees, and is upgrading research and development with venture capital that has trickled in from tech luminaries such as Jim Clark and Mohr, Davidow Ventures.

Clark, who founded Silicon Graphics, Netscape Communications and Healtheon, knew Manolis and co-founder Dan Baum from their days together at Silicon Graphics. He is Shutterfly's chairman.

Shutterfly's industry contacts surely will come in handy as it begins to seek partnerships that will be crucial to seizing a first-mover advantage. As a spate of Internet service providers have done recently, dot-com photo processors are expected to scurry for deals -- with retailers, manufacturers, portals and even larger competitors -- to increase brand awareness.

Shutterfly, for instance, has just signed a point-of-sales deal with Best Buy in which digital-camera buyers will be encouraged to use Shutterfly's services.

"Everyone's talking to everyone," said Gary Tashjian, PhotoWorks' marketing vice president.

Dot-com guerrilla marketing also includes plenty of freebies and discounts. For a limited time, PhotoAccess.com is giving away up to a million prints along with free storage to customers. As a result, it will have to generate a massive volume to turn a profit, a difficult proposition given the constantly improving quality of scanners and printers. Others have relied on advertising as a primary form of revenue, a precarious strategy in the crowded e-commerce market.

"It's a topsy-turvy business model," Lyra's Hoffenberg said. "Many of them are living off venture capital, and they're not in a mode where they have to be profitable at the moment."

Of course, a host of start-ups may be lining up to be acquired. "Consolidation is inevitable," Hoffenberg said. "Not all of them are going to survive."

"By this spring, we think there will be a land grab," PhotoWorks' Tashjian said. "And at some point, after this summer, there will be a shakeout."

At that point, competition from more mature brands is sure to surge amid the acquisitions.

Up to now, the two largest photofinishers, Kodak and Fuji, have stayed relatively quiet in the digital-imaging business. But they show signs of making noise, both through in-house products and acquisitions.

Fuji this year on its e-commerce site, <http://www.fujifilm.net>, said Howard Locke, business development manager of the Japanese company's Internet services.

Kodak launched its Quick Prints digital-image uploading service in August and is coming out with a new version shortly, said spokesman Anthony Sanzio. Its built-in advantage comes from the presence of kiosks at some 15,000 retailers, where a customer without a computer or scanner can upload images. A number of dot-com start-ups, including Snapfish and Ofoto, also already use Kodak papers for prints.

"We can provide brand equity," he said, responding to Wang's assertion that digital-image uploading is a "stepchild kind of thing" for Kodak. "We are going to be a player in this market, despite what any of the dot-coms have to say."

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DIGITAL PHOTOGRAPHY COMES INTO FOCUS COMPUTER AND FILM COMPANIES MAKE EASE OF USE A PRIORITY AFTER REALIZING CONSUMERS ARE CONFUSED.

San Jose Mercury News (SJ) - Sunday, March 7, 1999

By: MIKE LANGBERG, Mercury News Computing Editor

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MEMO:

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TEXT:

NEW technology rarely changes the lives of ordinary people until it becomes easy to use.

That's the challenge facing digital photography.

Millions of amateur snapshot buffs are beginning to grasp the idea that digital images -- either from a digital camera or scanned from film -- can be altered with a personal computer, turned into personal keepsakes such as greeting cards, or instantly shared with friends through the Internet.

But, despite great strides in making the technology less expensive, digital photography hasn't spread into the mass consumer market because the path is obscured by technological undergrowth. Figuring out how to configure a personal computer's serial port to accept input from a digital camera, for example, or deciding whether pictures posted on a Web page should be saved in the JPEG or GIF format are baffling issues for users who aren't graphics professionals.

"It's too hard to move images around and share them," says Lisa Walker, president of the Digital Imaging Group, an industry consortium based in Millbrae.

Digital photography, in Walker's view, needs to become as easy as -- or easier than -- dropping off a roll of 35-millimeter film at a local photo processor, then collecting prints an hour or a day later.

The first steps in that direction are coming this year, with a rush of new products and services aimed at removing what David K. Jones, a marketing executive at Eastman Kodak Co. in Rochester, N.Y., calls "the intimidation factor."

Part of that intimidation factor is an erroneous belief that digital photography is synonymous with digital cameras -- an off-putting proposition, given that digital cameras aimed at consumers run from \$400 to \$1,000. That's why several of the new initiatives provide a bridge for conveying 35mm pictures into the digital world.

Many of these user-friendly ideas were unveiled at recent trade shows in Las Vegas, the Consumer Electronics Show in January and the Photo Marketing Association International convention in February. Here's a look at some of them:

"YOU'VE GOT PICTURES":

America Online has made the expression "You've Got Mail" so popular that it became the title of a Tom Hanks-Meg Ryan movie released last year. The world's largest online service is preparing to extend that franchise into digital photography -- without requiring the purchase of a digital camera.

In a partnership with Kodak, AOL is launching a new service this summer called "You've Got Pictures." AOL's 16 million members will be urged to mark an AOL box on the processing envelope when dropping off film. Customers would get back their prints and negatives as usual, but the images would also be scanned into digital format and stored on AOL's computers.

A few days after dropping off the film, the same cheery male voice that announces "You've got mail!" will declare "You've got pictures!" Members could then view thumbnail-sized images of every picture from their roll of film. Just by pointing and clicking with a mouse, they can display the thumbnails at full size. With a few more mouse clicks, the images can be embedded in e-mail messages. It will also be easy to assemble photo albums, complete with captions, for sharing with other AOL members.

For a small extra fee, members will be able to download a high-resolution copy of an image suitable for printing. And Kodak will provide photograph-quality reprints by mail.

AOL hasn't announced pricing or the start date for "You've Got Pictures," but the service should be available nationwide at launch. A similar service started in December through a

partnership between the mail-order photo processor Seattle Film Works and the Excite service on the World Wide Web.

KODAK PICTURE CD:

Feb. 1, Kodak began a national roll-out for another approach to digitizing traditional film images that uses CD-ROMs instead of online retrieval. The Picture CD service starts much like "You've Got Pictures": Customers check off a Picture CD box on the processing envelope and still get back prints and negatives. But, for about \$9, they also get a CD-ROM containing high-resolution digital images.

Back in 1991, Kodak tried to interest consumers in CD-ROM processing with a product called Photo CD. It was an immediate failure, in large part because consumers had to buy a \$400 Photo CD Player to display the electronic images on a television set -- in those prehistoric days, home computers didn't have CD-ROM drives. Photo CD lives on, but is used almost entirely by professional photographers; Kodak is killing a more recent failed attempt at CD-ROM processing called FlashPix CD.

What makes Picture CD different is ease of use. Put a Picture CD disc into a PC running Windows 95 or Windows 98 and a program automatically launches displaying thumbnail images, providing simple picture-editing tools and even sending e-mail -- using a built-in e-mail program and your existing Internet connection -- with digital photographs as file attachments. Picture CD is available now at Target stores nationwide and should be offered by Walgreen and K-mart stores by the end of March. Wolf Camera plans one-hour Picture CD processing at two-thirds of its 750 stores by August. (For a more detailed evaluation of Picture CD, see the "Tech Test Drive" column accompanying this story.)

"SMART" KIOSKS:

One of the big stumbling blocks for digital cameras is that buyers must also have a PC for downloading and sharing pictures. But a new generation of "smart" kiosks in photo shops, pharmacies and similar locations will make it possible to use a digital camera without a computer.

Fuji, Kodak's rival in the film business, is introducing one such kiosk called Fujifilm Aladdin Digital Picture Center. At first glance, the Aladdin looks something like today's kiosks that merely offer high-quality copies of photographs. But the Aladdin has slots for memory cards from most types of digital cameras. Images from the memory cards are then displayed on a screen,

where customers can edit them and order on-the-spot prints. The kiosk is also connected to the Internet, so pictures can be dispatched to friends and family by e-mail.

Several other companies -- including Kodak, Konica and Live Picture Inc. -- are working on similar "smart" kiosks. Expect to see them popping up everywhere starting in the second half of this year.

PHOTO PRINTERS:

Another way to cut PCs out of the digital photography loop is with printers that connect directly to digital cameras. At least a half-dozen companies -- including Fuji, JVC, Olympus, Panasonic, Polaroid and Ricoh -- offer "photo printers" using a process called dye sublimation that produces near-photo-quality output on special paper.

These "dye sub" printers, mostly priced at \$400 to \$500, connect directly to digital cameras through a cable or a slot for memory cards. And most of them can be hooked to a television set to display images, so users can see what they're printing. A few even offer limited tools for cropping and editing images.

Dye sub printers can also be plugged into a PC, but -- because they are designed solely for producing photographs -- they aren't a substitute for the more common inkjet printers that also handle text and graphics. For those who want to stick with an inkjet, Lexmark offers the \$349 Photo Jetprinter 5770 that comes with slots that accept the two most common types of digital camera memory cards, Compact Flash and Smart Media. Inkjets, using special coated paper, can come close to photographic quality, although not quite as close as their dye sub cousins.

How fast will these innovations lure consumers across the digital divide?

There isn't a consensus.

"The consumer market is accelerating. The leap probably be made in the next 12 to 18 months," says Glenn S. Omura, a professor of marketing at Michigan State University who studies the photo-processing industry. In other words, he expects the vast majority of amateur photographers will begin migrating toward digital by the end of next year.

But Michelle Lampmann of the research firm InfoTrends Research Group Inc. in Boston says it could be three to five years before the selling proposition for digital is so compelling that consumers walk away from the convenience and familiarity of 35mm film.

"Consumers still want to hold the prints in their hands," Lampmann declares.

Alexis Gerard, editor and publisher of The Future Image Report newsletter in San Mateo, says the change will be "generational" as today's computer-savvy children and adolescents grow into adults with families and the desire to take lots of pictures of them.

Reflecting on his own children, 11 and 14, Gerard concludes: "Why would my kids ever use a film camera?"

CAPTION:

Photos (3)

PHOTO Portable memory cards are a key part of digital photography. They allow you to remove your saved pictures from the camera and load them into a printer, computer or one of the "smart" kiosks that are popping up in photo shops and drugstores.

(990307 CO 1E)

PHOTO Lexmark Jetprinter 5770, below, lets you print out your digital photos on high-quality paper.

(990307 CO 1E)

PHOTO Kodak's Picture CD uses a magazine-like format to display a thumbnail index of photos on a CD-ROM as well as editing options.

(990307 CO 4E)

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Telepix Imaging Heats Up Photography Market With Digital Imaging Solutions

CANADA NEWSWIRE

September 16, 1998

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Products targeted at home, retail, corporate and industrial markets

TORONTO/COLOGNE, Germany, Sept. 16 /CNW/ - If a picture is worth a thousand words, then Telepix is going to write a new chapter in the history of digital imaging with, as their trademark promises, "Pictures. Anytime. Anywhere." The launch of Telepix's wide array of digital imaging products signals the beginning of a new era for home PC users, retail photo finishers and corporate enterprises. Telepix is the first contender in the digital marketing forum to offer a comprehensive set of coordinated digital imaging products customized to suit the individual needs of each target audience. "Everyone is catching on to the incredible power that the digital medium offers - going beyond capturing photos digitally, to enhancing them in creative ways, and sharing them with friends and family via the Internet and retail partners' facilities around the world," said Karl Kenny, president of Telepix Imaging Inc. "Our digital imaging solutions give retailers the means to capitalize on this growing market and grow in accordance with it, driving traffic to their stores and providing them with extra sources of revenue." The Telepix products announced today include: Telepix Factory(TM) - A digital photo production solution for photo finishers and retail minilabs that includes both PC hardware, software and the benefits of network connectivity. Combining a comprehensive array of features with an intuitive, easy-to-use interface, the software works with virtually any media type to let photo lab technicians produce high quality, affordable digital photo products for their customers. These include photos on floppy disks and CDs, high resolution scans, index prints, high quality digital prints and enlargements, photos on the Internet, and photo gifts and merchandise.

Telepix Photo Network(TM) - The only photo network to offer true exclusivity to the retailer, the Telepix Photo Network gives retailers the means to establish and maintain closer ties with their customers by offering truly useful, desirable services and products. The Telepix Photo Network lets people easily organize and share their digital photos, as well as view and download digital rolls of film that are scanned by photo finishers and upload digital photos they capture themselves using digital cameras and scanners. Once their photos are on the Telepix Photo

Network, people can also order prints, enlargements, personalized photo gifts and products and enjoy the benefits of FotoClub's online photo archive services. Telepix PhotoStation(TM) - This touch-screen kiosk is the affordable nucleus for a retailer's entire digital photo service. Telepix PhotoStation is scaleable to meet both the current and future needs and budget of the retailer while allowing for continuing developments in digital technology. It lets people easily perform digital enhancements as well as make prints and enlargements from photos, negatives, slides and digital sources - and it's the only photo kiosk on the market that lets customers work seamlessly with their images from a photo network as well as the Web. Using extensive network connectivity technology, Telepix PhotoStation offers retailers the flexibility of using their own or independent service facilities to produce restorations, photo gifts and decor items that can dramatically increase their profitability compared with other products on the market. Telepix FotoPoint/Studio(TM) - Supporting more than 50 file formats, FotoPoint/Studio gives people all the tools they need for managing their collection of photos and enhancing their pictures. Using an "Image Workspace" interface, FotoPoint/Studio lets people organize their pictures into easily understood "albums" and perform photo enhancements and dazzling creative effects with click-and-go ease. FotoPoint/Studio also offers seamless integration with e-mail, the Internet, Telepix Photo Network, Telepix PhotoStation kiosks and photo gift production services. This promotes increased interactivity between photo finishers and their customers and increased revenue potential for retailers.

Telepix Pro(TM) - A scientific image management software solution aimed at the industrial medical and research communities. Telepix Pro integrates text and images for research organizations and can shorten the diagnostic cycle time. It has proven ideal for use in scientific imaging applications that focus on image storage and retrieval applications. Telepix Pro Solutions range from affordable entry-level imagers to high-end, state-of-the-art systems that open the door to new leading-edge applications, all linked through network connectivity.

Photo Central(TM) - An image management solution for law enforcement and public safety organizations developed to make it easier to find images, share timely information and solve crimes faster. Photo Central enables law enforcement agencies to create and access distributed image archives. The product lets law safety officials capture digital images, then transfer them to a computer for display, analysis, storage, electronic transmission or printing. A proven law enforcement aid, the software is currently used by the Royal Canadian Mounted Police, the Metropolitan Toronto Police, and the Ontario Provincial Police, among other North American law enforcement agencies

. Telepix Imaging: Technology Differentiators - Easy to use solutions, with an elegant user interface that offers simplicity and power for any user - Telepix Photo Network is the only photo network available to retailers for exclusive ownership, branding and imaging - Many of Telepix's solutions include the company's proprietary image compression, FotoSnap(R), which allows for the fast retrieval and transmission of images across the Internet or photo network, and reduced storage requirements, without the loss of image quality - Telepix solutions complement a user's existing image editing software and hardware. Telepix FotoPoint/Studio is the perfect tool for any editing task, but will look for and integrate with any previously installed imaging software such as Adobe PhotoDeluxe and PhotoShop, MGI PhotoSuite, etc. Similarly, Telepix Pro, Factory, PhotoStation and Photo Central can integrate with nearly any existing hardware and software to make them even more productive and affordable to implement Telepix Imaging Inc. is based in Toronto, Ontario, with software development facilities in St. John's, Newfoundland. Chosen in 1997 as one of the "Top 25 Up and Coming Canadian Technology Companies" by The Financial Post, Telepix was founded and is run by leaders in the development of digital imaging solutions for end-users, corporations and photo finishers. The company's management team includes talented engineers who were responsible for developing numerous technology solutions, as well as former executives at Eastman-Kodak, Ritz Camera, MGI Software, and Black's Photo. Together, the Telepix team has a deep understanding of the North American and international digital imaging and photo retailing markets. More information about Telepix and its products can be found on the World Wide Web at <http://www.telepix.com>. FotoSnap is a registered trademark and Telepix, Telepix Factory, FotoPoint, Telepix Pro, Photo Central and FotoPoint Studio are trademarks of Telepix Imaging Inc. All other trademarks and registered trademarks named herein are the property of their respective companies. /NOTE TO EDITORS: IF YOU WOULD LIKE TO EVALUATE ANY OF THE PRODUCTS MENTIONED IN THIS RELEASE, THE FASTEST ROUTE IS TO CONTACT BENCHMARK COMMUNICATIONS AT THE NUMBER INDICATED BELOW./ /For further information: Editorial Contacts: Kyle Hall, Telepix Imaging Inc., (905) 278-8341, [khall\(at\)telepix.com](mailto:khall(at)telepix.com); Ali Philips, BenchMark Communications Inc., (416) 423-6605, [alisonp\(at\)benchmarkpr.com](mailto:alisonp(at)benchmarkpr.com)/ 09:11 ET

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KODAK, IBM AND SPRINT TO SEND IMAGES AROUND THE WORLD AT SPEED; NEW
'HYPERCOMPRESSION' ALGORITHM.

Computergram International, pCGN03300007

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TEXT:

Eastman Kodak Co and its partners are predicting an explosion in the movement of images across networks, similar to that of text across the Internet. Until now, said Carl Gustin, vice-president and general manager of Kodak's Digital and Imaging organisation, efforts to speed up electronic image transfer have concentrated on providing higher bandwidths to send more data. Kodak's model bypasses this consideration, and concentrates on moving less data through the pipe. Collaborating with IBM Corp and Sprint Corp, Kodak is developing a system to send images around the world using a combination of three technologies. Kodak's Photo CD format stores images in a single file Image Pac format and enables users across a network to work with a lower resolution image that can be transmitted more quickly. Function Interpolating Transformation System, or FITS, is an image algorithm licensed by Kodak from Live Picture Inc that treats changes to an image separately from the image itself, enabling real-time editing and faster transmission. And Image Access System is Kodak's method of image management that enables users to file and retrieve images from a central repository. By adding a script based on the FITS algorithm to the Photo CD Image Pac format, any changes made to an image can be stored in a small script file and that can be transmitted independently of the image itself. If a user requires a high-resolution version of the image it can be retrieved from the central database. Kodak is attempting to make Image Pac a standard by distributing it free and will license the Image Access System to network providers for a small charge. Kodak sees the future of network imaging split into public and private image networks. The former are designed to be accessed by any user on a public network, like the Internet, while the latter is designed for business use. IBM and Kodak aim to have a commercial picture sale and distribution system operating over the Internet and the IBM Global Network by early 1996. In a similar deal, Sprint Corp and Kodak will collaborate to offer image sharing and distribution services over Sprint's fibre optic network. According to Carl Gustin, vice-president and general manager of Kodak's Digital and Imaging organisation, Sprint will be

the first network provider to offer products and services based on Kodak technology. Eastman Kodak Co has developed a "hypercompression" algorithm - the Image Verification System, IVS - to enable a person's image to be represented by a 400-bit data packet that is small enough to be stored on the magnetic strip of a credit card or as a bar code on a cheque. A decompression program in a retail terminal enables the image to be displayed while the transaction is made. A verification code is attached to other data, such as a merchant code, and it can be compared at a central data centre to detect any changes made to the card. The technology will be used in conjunction with IBM's 4690 point-of-sale systems later this year. The two companies also have agreements for standardising optical storage technology for write-once media and an expansion of the agreement under which IBM markets Kodak scanners.

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Start-Up Firms Jump into Digital-Photo Processing Market

Roger Yu

KRTBN KNIGHT-RIDDER TRIBUNE BUSINESS NEWS (SEATTLE TIMES - WASHINGTON)

February 24, 2000

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In the burgeoning world of digital photography and its gadgets, the all-so-retro photo prints are becoming hip again, thanks to a flurry of start-ups that have found the niche and gone live in the last quarter.

The companies, which include Seattle-based PhotoWorks, are attempting to fill a market created by the growing number of digital photographers who are finding that relatives without computers still want to see the baby girl on film-quality picture prints.

Until now, digital-camera owners had little choice but to leave the images on their hard drive or print them out on their ink-jet printers, whose images are blurry, nonarchival and, ultimately, unsatisfying.

The digital technology is responding by taking a step back to feed the demand that's been brewing while the popularity of digital cameras and online photo storage continues to bloom. Again proving that no unique cyber-ideas can remain unique, more than 10 start-up companies launched their businesses last to some 2.3 million digital-camera users in the U.S., according to Lyra Research.

PhotoWorks, a traditional photo lab formerly known as Seattle FilmWorks, introduced the service last month, while PhotoAccess.com, Shutterfly.com, Snapfish.com and Pfoto.com, to name a few, launched their sites recently.

Producing quality prints from digital images may be conceptually intuitive but, until now, has lagged. But its emergence says volumes about the digital-imaging market -- that such an intrinsic service was overlooked in the name of the latest thing and that, ironically, it took the merging of digital-technology advances and a decline in camera prices for the print market to be served.

The process is simple: Plug the digital camera into a computer and send the image to a processor's Web site. Once an order is made, the company will touch up images, print them on photo-quality paper and mail them to the customer in about a week's time. A 4-by-6 print costs

about 50 cents. In comparison, a 24-exposure roll of 35mm film costs about \$4 to develop and print, significantly cheaper.

"We're solving the shoe-box problem," said Gene Wang, founder and chief executive officer of PhotoAccess.com, a Silicon Valley start-up whose Seattle office maintains the site. "We're on a Moore's Law type of curve in digital cameras," he said, referring to the principle expounded by Gordon Moore, one of the founders of Intel, to project the accelerated growth of computer processing.

Not only are these companies counting on fast growth, but the digital photofinishing market is projected to be sizable.

A joint market study conducted by Lyra Research and Photo Finishing News estimates that the online photofinishing market -- including digital and scanned film-based images as well as prints made on T-shirts, mugs and other souvenir imprints -- will generate about \$413 million this year, compared with \$112 million last year and \$9.7 million in 1998.

Lyra analyst Steve Hoffenberg said about \$20 million of the total business in 1998 came from digital-camera owners looking to print images. This niche market should grow to about \$760 million by 2002, he said.

"There's room enough for a lot of companies to succeed," Hoffenberg said.

Projections from industry-tied research firms are invariably optimistic, but a host of dot-com start-ups are betting that the nostalgia of hand-held pictures, unlike their image files, will not fade.

PhotoAccess, whose executive circle includes digital-camera pioneer Mammad Safai, rolled out PhotoStreamer last year, an in-house application for uploading digital images to its servers, and is working on a camera with built-in "Internet connectivity," Wang said. Although he wouldn't elaborate, he said the camera would not depend on a PC for uploading images.

Shutterfly.com launched its site in June after founder Eva Manolis discovered she couldn't send quality prints of her newborn daughter to her mother. The company has since grown to about 80 employees, and is upgrading research and development with venture capital that has trickled in from tech luminaries such as Jim Clark and Mohr, Davidow Ventures.

Clark, who founded Silicon Graphics, Netscape Communications and Healtheon, knew Manolis and co-founder Dan Baum from their days together at Silicon Graphics. He is Shutterfly's chairman.

Shutterfly's industry contacts surely will come in handy as it begins to seek partnerships that will be crucial to seizing a first-mover advantage. As a spate of Internet service providers have done recently, dot-com photo processors are expected to scurry for deals -- with retailers, manufacturers, portals and even larger competitors -- to increase brand awareness.

Shutterfly, for instance, has just signed a point-of-sales deal with Best Buy in which digital-camera buyers will be encouraged to use Shutterfly's services.

"Everyone's talking to everyone," said Gary Tashjian, PhotoWorks' marketing vice president.

Dot-com guerrilla marketing also includes plenty of freebies and discounts. For a limited time, PhotoAccess.com is giving away up to a million prints along with free storage to customers. As a result, it will have to generate a massive volume to turn a profit, a difficult proposition given the constantly improving quality of scanners and printers. Others have relied on advertising as a primary form of revenue, a precarious strategy in the crowded e-commerce market.

"It's a topsy-turvy business model," Lyra's Hoffenberg said. "Many of them are living off venture capital, and they're not in a mode where they have to be profitable at the moment."

Of course, a host of start-ups may be lining up to be acquired. "Consolidation is inevitable," Hoffenberg said. "Not all of them are going to survive."

"By this spring, we think there will be a land grab," PhotoWorks' Tashjian said. "And at some point, after this summer, there will be a shakeout."

At that point, competition from more mature brands is sure to surge amid the acquisitions.

Up to now, the two largest photofinishers, Kodak and Fuji, have stayed relatively quiet in the digital-imaging business. But they show signs of making noise, both through in-house products and acquisitions.

Fuji this year on its e-commerce site, <http://www.fujifilm.net>, said Howard Locke, business development manager of the Japanese company's Internet services.

Kodak launched its Quick Prints digital-image uploading service in August and is coming out with a new version shortly, said spokesman Anthony Sanzio. Its built-in advantage comes from the presence of kiosks at some 15,000 retailers, where a customer without a computer or scanner can upload images. A number of dot-com start-ups, including Snapfish and Ofoto, also already use Kodak papers for prints.

"We can provide brand equity," he said, responding to Wang's assertion that digital-image uploading is a "stepchild kind of thing" for Kodak. "We are going to be a player in this market, despite what any of the dot-coms have to say."

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Photo play. (guide to image editing) (includes related articles on file format choices, resolution, fun projects to do with digitized photos)

(Technology Information)

Cryan, Shelley

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ABSTRACT: A guide to digital technology for amateur photographers is presented. Existing photos can be readily converted into computer files either with an inexpensive scanner or through a service bureau. Professionally digitized photos are usually delivered compressed on a floppy disk; the user will need a lot of hard disk space to convert them to a standard file format. PictureWeb offers a service that stores digitized photos on the World Wide Web. Many photofinishers digitize images to Kodak Photo CD format, which offers very high resolution and color accuracy. Photo CD images can take up a lot of RAM, and the cost tends to be high; Photo CD is overkill for many hobbyists. Color scanners are now inexpensive and easy to use, and most flatbed scanners offer better resolution than low-cost scanning services. Storm Software's EasyPhoto Reader is an innovative scanner that scans snapshots only. Digital cameras let users create digital images directly, often for less than \$1,000. Image-editing software is a necessity; good products for hobbyists include Adobe's PhotoDeluxe and PictureWorks' PhotoEnhancer Plus.

TEXT:

Polish your images without breaking your budget.

Are your cherished photos hidden away in dusty albums?

Or, worse, piled up haphazardly in bulging shoe boxes? Well, drag them out, dust them off, and get ready for a round of new products destined to turn your Mac into a low-cost photo shop.

The multibillion-dollar amateur-photography market has caught the attention of the computer industry, triggering an avalanche of new products and services focused on getting shutterbugs addicted to their computers.

Using a variety of these products, we scanned, printed, downloaded, and edited our own photos and found that many of the products were affordable, easy to use, and fun.

You can start getting playful with your pictures by first converting them into computer files. You can do this either through one of the many new services that have been popping up recently or by means of new, inexpensive home hardware now on the market. Once your photos have been digitized, you can then use a range of image-editing programs to turn your Mac into a virtual darkroom.

The programs we tested let you perform a variety of alterations, from salvaging underexposed or poorly composed photos to going as far as editing out an ex-spouse whom you might want, so to speak, out of the picture. Edited photos can then be dropped into specialized project software and used for personalizing a variety of everyday objects, including calendars, coffee mugs, and greeting cards.

All this photo fun is open to most Mac users, even those with 68040-based Performas packing 8 MB of RAM. But those who might become frustrated occupy both ends of the spectrum. People with relatively anemic Macs (68030-based or less powerful ones) won't have the horsepower to manipulate photos at anything faster than a snail's pace. Graphics pros, who prize versatility and demand precision in their tools, will likely be underwhelmed by the hobbyist level of the affordable hardware and software we've chosen. If you and your CPU fall somewhere in between, get ready for some photo opps.

Step 1: Turn Pictures into Pixels

Getting color photos into your computer is cheaper and easier than ever. In the short run, the least expensive route is to have someone digitize your photos for you. You'll pay for each photo but won't have to cough up funds to purchase any input hardware.

However, if you need tight control over turnaround time, you may want to consider digitizing your photos yourself. After the initial outlay for a scanner or a digital camera, the cost per scan is nil.

Full Service

If you opt to take your pics to a shop for digitizing, you still have several methods to choose from, distinguishable chiefly by resolution (see the "Pixel Perfect" sidebar), price, turnaround time, and delivery medium. Many service providers digitize photos en masse, via an automated process. Some deliver the goods on floppies, others post the images online for downloading, and yet others burn them onto CDs.

Floppy Photos. Need a 24-exposure roll digitized? How does four bucks grab you -- for the whole roll? A few photofinishing companies now offer digitizing as an option with a regular developing and printing order. When you get your prints and negatives back, sometimes in as few as two days, the envelope also contains a floppy full of photos.

But be prepared to make room on your hard disk to accommodate these large image files. In order to work with the photos on-screen, you must copy the files to your hard disk, decompress them, and convert them to a standard file format, such as TIFF or PICT (see the "Saving Grace" sidebar), using a utility provided for free by the digitizing service.

Photos-on-floppy providers, such as Konica PictureShow, are often as close as the photo drop box at your local drugstore or grocery chain. If you can't find this service locally, check out a company that works via the mail, such as Seattle FilmWorks. You'll get your floppy back, chock-full o' pics, in about a week. When time is of the essence, you can shave off a few days by downloading your pictures from Seattle FilmWorks' Web page (<http://www.filmworks.com>) at no extra charge. If you're using a 28.8-kbps modem, download time for a 24-exposure roll runs roughly six to eight minutes.

The image quality of floppy-based photos is adequate for many hobbyist-level projects, such as newsletters and personalized calendars.

Konica images weigh in at 600 x 400 pixels; those by Seattle FilmWorks have a slightly higher resolution -- 640 x 480 pixels.

~~CyberStorage.~~ Floppies don't last forever, and given that image files are notorious space hogs, your hard disk tends to fill up fast. One company, ~~PictureWeb~~ (<http://www.pictureweb.com>), offers a solution: After digitizing your pictures, the company stores them for you on the Web. You and your designated friends can then punch in a private password to browse through your photos at any time. ~~PictureWeb~~ also maintains a limited site on America Online and will likely be offering full services there by the time you read this.

Beware, however: ~~PictureWeb~~ pages, especially those laden with a dozen thumbnails of your images, can take a minute or two to appear on your screen, even if you're using a 28.8-kbps modem. Click on a thumbnail to see a larger version of a selected image, and then download it if you want that image.

Besting the photos-on-floppy digitizers, ~~PictureWeb~~ offers several choices of format (JPEG, GIF), compression, and resolution (choose custom resolutions of up to 800 x 640 pixels) for downloading. Also, its top resolution choice beats out those provided by Konica PictureShow and Seattle FilmWorks. The download time for an image with the highest resolution and least amount of compression is about two minutes if you're using a 28.8-kbps modem; images with lower resolution and greater compression take less time.

Remember, however, that because ~~PictureWeb~~ stores images for you, you have to download only those you need for a project. The rest, as well as the originals of any images you download, stay safely in ~~PictureWeb's~~ Web space. You pay \$24 to store up to 100 images for a year.

~~PictureWeb~~ charges \$28 to develop, print, and digitize a 24-exposure roll, but it plans to drop this price to \$12 by the time this article appears, bringing its fees in line with those of budget digitizers. (However, you'll still pay 99cents to have an individual print, slide, or negative digitized

by PictureWeb®) It also plans to team up with mail-order firm Mystic Color Labs to offer online delivery of digitized photos to Mystic's clients.

CD Solution. If you're looking for the Rolls-Royce of mass-digitizing services, you'll find it in Kodak's Photo CD. Although many average storefront photofinishers offer Photo CD service, Photo CD images are of such high resolution that even graphics professionals use them in their work. Additionally, the images are permanently stored on a durable compact disc, sparing your hard disk.

Photo CD discs each hold about 100 photos, each of which appears in five resolutions. Three of the resolutions exceed those of photos-on-floppy digitizers (up to a whopping, RAM-choking 3,072 x 2,048 pixels). The maximum resolution is decidedly overkill for hobbyist projects, but because Photo CD images are equal in quality to those snapped on 35mm film, this storage method is ideal for archiving. Plus, you don't have to archive all your photos at the same time; you can store subsequent photos on partially filled discs at later dates.

Kodak also offers a variety of low- or no-cost utilities that streamline the use of Photo CD images, optimize color accuracy, and help manage image collections across many discs. You can also easily share your Photo CD discs with Microsoft Windows devotees.

Photo CD discs may sound like the perfect storage option, but there's a dark cloud for every silver lining. If you want to keep the processing cost for a 24-exposure roll under \$30, expect a two-week turnaround. If you need one-day turnaround, cough up roughly twice that and be sure to go to a photofinisher who processes Photo CD discs on-site. (Processing of an individual print or slide costs between \$1.50 and \$3.00.) To economize, have your film developed and printed traditionally and then select only your favorite photos to put on-disc.

Do It Yourself

If you get tired of shoveling money to digitized-photo providers, consider digitizing your photos yourself. Low-cost hardware can make it happen -- with few hassles.

Scanners. Prices of color scanners have dropped, and the scanners have become easier to use. Standard flatbed scanners offer a scanning area with dimensions almost equal to those of legal-sized paper, so you can scan large as well as small photos. The maximum resolution you get from most flatbed scanners is greater than what you can get from budget scanning services, and the price is right. Scanners targeted at home users -- including offerings from La Cie, Hewlett-Packard, Apple, Epson, Microtek, and UMAX -- start at about \$400. In general, you pay more for scanners that offer higher resolution and sophisticated color-capture features.

Storm Software's EasyPhoto Reader offers an innovative twist on scanner technology. At about half the size of a shoe box, this diminutive gizmo is built to scan prints of up to 4 inches in width. Period. Unlike its flatbed brethren, the EasyPhoto Reader can't scan thick items such as books. Nor does it include sophisticated software for adjusting color values and image resolution before you scan. And you can forget about any optical-character-recognition capabilities.

Instead, the EasyPhoto Reader trades versatility for unparalleled ease of use and an attractive \$269 price. It connects via a serial port, so it's not part of a potentially fragile SCSI chain. Scanning is a one-touch operation: Stick your photo onto the tray, and press a button. The Reader grabs it, scans it, and spits it out. It requires no technical expertise on your part. Best of all, scans match the original image quite closely and the maximum image resolution, 200 dpi, tops that of digital cameras and budget digitizers.

Digital Cameras. Need the shortest-possible turnaround time? Bypass film entirely by capturing images digitally.

If your Mac has a video-in port, either built-in (as on the Power Mac 7500) or supplied via an add-in card, you can plug your family camcorder or VCR into your Mac and grab images from favorite videotapes. Or fork out \$99 for Connectix's QuickCam, a grayscale, no-frills digital-video camera that plugs into a standard serial port.

A more versatile solution, however, is to use one of the hot \$1,000-and-under color digital cameras. They offer autofocus and autoexposure, so they operate like traditional point-and-shoot cameras. Digital cameras' claim to fame: They have no film.

Instead, images are stored in the camera's built-in memory and can be transferred to your computer via a cable that connects the camera to your computer's modem or printer port. You can go from releasing the shutter to viewing your photos on-screen in literally minutes. Digital cameras generally offer you the same photo capabilities as low-cost point-and-shoot cameras, but film captures greater image detail, enabling you to pull off artistic close-up shots.

The low-end-digital-camera field is crowded these days, with entries from companies such as Casio, Apple, Chinon, and Kodak. Epson is working on one that's due out at about the time this article appears. In our informal tests, the Casio images, which have relatively low resolution, appeared grainier than most. Despite its hefty price tag of \$979 (estimated street), we especially liked Kodak's new DC50 Zoom model, which comes with a zoom lens and offers expandable storage via PC Cards (see review, May '96, page 44).

Step 2: Photo Finishing

Once your photos are digitized, the ugly truth may come out: Your pictures aren't perfect. Not everyone is an Ansel Adams or an Annie Leibowitz. Your pictures may be under- or overexposed, suffer from poor composition, or be plagued by the red-eye menace. Or heck, the photos may look fine artistically but you'd rather have Tyra Banks' or Jackie Chan's body instead of your own.

Fortunately, image-editing software gives you the means to enhance your digitized photos. Programs aimed at hobbyists sport low sticker prices as well as friendly interfaces.

You'll probably start using the programs for cosmetic touch-ups and simple formatting, such as rotating an image. If that's all you want to do, you might be content with the free file-conversion utilities that are provided by Konica PictureShow and Seattle FilmWorks and that offer very rudimentary image-editing features.

Digital cameras usually come with more-substantial software. Apple PhotoFlash, which is bundled with Apple's QuickTake 150 camera, has particularly easy-to-use controls for straightening images, cropping, and removing scratches and dust. Kodak cameras include PictureWork's PhotoEnhancer; a beefier version is available as PhotoEnhancer Plus. Both versions win the ease-of-use prize when it comes to adjusting colors, contrast/brightness, focus, and exposure. Pull up the Filter By Example dialog box to adjust, for example, the yellow-to-blue range of color values. PhotoEnhancer (as well as PhotoEnhancer Plus) then displays a section of your image repeated nine times, with varying levels of color, ranging from mostly yellow to a dominant blue cast. Double-click on the image you like the best, and the adjustment is complete.

Many of the budget image editors, including PhotoEnhancer Plus, let you make more-drastic changes. Others in this category are Microfrontier's ColorIt!; Microspot's PhotoFix; and MacSoft's PhotoMaker, which is actually a limited version of ColorIt!. All sport a large image-editing area with a menu up top and a floating toolbox.

Another program, Adobe PhotoDeluxe, offers many of the features and tools common to image-editing programs, but its approach redefines simplicity. Instead of having an image area flanked by a tool bar and menu bar, PhotoDeluxe arranges file-folder-like tabs across the top of the screen. Click on the tabs to uncover step-by-step instructions for adjusting image brightness, color balance, and more. There's also guidance for slightly-more-involved alterations, such as replacing the background of one photo with that of another, putting your head on the body of someone or something else, removing red-eye, and applying special-effects filters.

A variety of handy tools populates the average image-editing program's toolbox. Use the pencil tool to draw arrows pointing to a particular location in a photo (the grassy knoll?) or to add an inscription in your very own handwriting. Spray-paint over a busy background, or whip out the paintbrush to see what your house would look like in a different color.

It's the specialized image-editing tools, however, that can be the most fun to use. Clone tools, for example, help you cover unwanted parts of an image, such as ugly telephone wires, by letting you "paint" with colors and patterns you pick up from other areas of the image. Another convenient tool, the magic wand, enables you to select a contiguous patch of color with a single mouse click. This sure beats painstakingly outlining a section of sky you want to brighten or tracing around a head of hair you want to recolor.

Once you've mastered some of the more specialized tools, you can play with some creative cutting and pasting. Drop sections of one image into another image, creating scenes that never existed in real life. Seat yourself next to Brad Pitt, share a joke with President Clinton, or circle the globe in the space shuttle -- all on your Macintosh screen.

All the programs we used also offer funky special-effects filters. Some filters let you trace the edges of an image in black, making a sort of coloring-book version of the image. Another filter creates an embossed look. Just select a filter from a menu when your photo is open, and the

program will apply the change. If your software doesn't come with the filter you're looking for, try using a set of third-party plug-ins, such as KPT Cool Effects, by MetaTools. Plug-ins, most of which are collections of filters designed to work with Photoshop, can be used with nearly all the image-editing programs mentioned in this article, excluding both versions of PhotoEnhancer.

Step 3: Make Arts into Crafts

Edited digital photographs are the raw material for a host of fun projects. Drop them into a word processor, such as Microsoft Word, or a page-layout program, such as Adobe PageMaker, to create eye-catching For Sale signs, missing-dog posters, real-estate flyers, or family newsletters.

Painless Projects. Don't have the time or skill to design layouts?

Check out specialized software. One of the image editors -- Adobe PhotoDeluxe -- doubles as a project generator. PhotoDeluxe not only guides you through enhancing an image but also provides tab-based step-by-step instructions for completing projects with photos. Projects include colorful calendars, greeting cards, funny money, flyers, signs, and fake magazine covers.

Broderbund's PrintShop Deluxe CD Ensemble offers templates for creating posters, banners, greeting cards, business cards, and postcards, all of which can be made more personal when illustrated with photographs. Compared to PhotoDeluxe, PrintShop offers fewer projects that are specifically designed to incorporate photographs, but you can customize the terrific collection of templates and enhance them with PrintShop's ample supply of clip art.

If none of these programs has that esoteric greeting-card layout you need, you might find it in Mindscape's CardShop Plus, which offers card layouts, clip art, and suggested text appropriate for birthday, St. Patrick's Day, and get-well cards and a host of others. The interface is a bit confusing, however, making the program harder than necessary to master.

If you're not keen on making customized cards and calendars but would just like to get all those old photos out of their overloaded shoe boxes, you can use ProView's E-magine to create a digital photo album. This simple program lets you fill album pages with photos as well as with sounds and movies. You can view the pages in sequence, as a kind of slide show, or click on "hot areas" that you can set and that let you jump to preselected pages. The beauty of this program is how easy it is to use -- you can create an album in minutes.

Image Producers. For projects that require color output, check out the under-\$500 inkjet printers, including those from Apple, Epson, and Hewlett-Packard. If you want higher-quality or larger-sized output than what desktop printers can produce, consider bringing your files to a service bureau (check in the Yellow Pages under Desktop Publishing). For photographic-quality prints, ask for output on a dye-sublimation printer, which offers a richly colored, lustrous finish similar to that of a glossy photograph.

The dye-sub printers at service bureaus can output images with dimensions as large as 12 x 18 inches, but if you want photographic-quality prints you can store in your wallet, take a look at

Fargo Electronics' FotoFun! dye-sub printer. Ideal for home users, this shoe-box-sized \$499 printer is so easy to install and use that in less than ten minutes, you'll be printing your kid's best baby pictures to send to grandma. Maximum output size is 4 x 6 inches, and you have to use special paper and dye ribbons available through Fargo.

For about \$40 more, you can buy companion kits from Fargo that let you print onto label or postcard media (36 prints apiece). An additional kit, also for \$40, includes materials that let you transfer photos to four coffee mugs -- it's as easy as printing an image, securing it to a supplied mug, and then baking the mug for 15 minutes. The results are impressive; the image is permanently fused to the mug, appearing as clear, sharp, and colorful as the original print.

The Big Picture

Using photos -- your own photos -- in everyday projects is easier than ever and is no longer the exclusive purview of graphics professionals. New services and products offer myriad ways to digitize and manipulate images, at prices well within the reach of most hobbyists. And there's certainly no shortage of ways to use the images. So go ahead and, er, develop your photographic talents. There are no negatives: It's a snap.

Shelley Cryan is a MacUser contributing writer with a photographic memory. Unfortunately, it doesn't always develop.

Just a Click Away: PhotoEnhancer, and its beefier sibling, PhotoEnhancer Plus, provide a quick and easy way to fine-tune your images. Here, you'd just look over the color choices that were presented to you and click on the one you liked best.

Presto Chango: Your friends may think you slaved all day stylizing your image, but you know that it took only one or two mouse clicks in your image-editing program. Just pick your favorite special-effects filter, and watch as your image goes from ho-hum (A) to artsy (B). Many image-editing programs also accept third-party add-on filters, such as those provided in KPT Cool Effects, from MetaTools (C).

Saving Grace: In a TIFF over file-format choices?

When saving images to disk, you need to decide on a file format. Sometimes you may not have a choice -- the program in which you plan to use your images may accept only a certain format -- but usually you've got some latitude. Also, some formats offer compression options, which make it easier to fit images on floppies and conserve hard-disk space. Here are some common formats and compression schemes:

EPS

(Encapsulated PostScript)

EPS is the only format that supports the use of clipping paths, which allow you to create irregularly shaped images, as opposed to only rectangular and square ones. However, stick with the TIFF or PICT formats if your final output will be to a non-PostScript printer.

GIF

(Graphic Interchange Format)

If you plan to post your images online, GIF is a smart bet, because its relatively small file size allows images to transmit quickly over the Internet. This format is a poor choice for most other uses, however; because GIF files are limited to 256 colors, details and color quality suffer.

JPEG

(Joint Photographic Experts Group)

Because of its very small file sizes, the JPEG format is another good choice for images transferred via modem or for those crammed onto a floppy disk. JPEG is actually a compression scheme that throws away data to save space -- called a "lossy" scheme -- so you'll notice image degradation if you opt for a high level of compression. At lower levels of compression, however, picture quality remains accurate.

PICT

(not an acronym)

Files in this very common bitmapped format are often used for on-screen presentations, because of their relatively small size. Avoid using PICT as a file format if you need to color-separate your output or if the image contains PostScript text or graphics--with PICT, what you see on-screen is not always what you get on paper.

TIFF

(Tagged Image File Format)

Images in this format are high-resolution and bitmapped. As a rule of thumb, TIFF files work well for the printing and on-screen display of photographic images. You can reduce the size of TIFF files by using the LZW (Lempel-Ziv-Welch) compression scheme, which some programs may offer as an option. Unlike other types of compression, LZW maintains image quality through a so-called "lossless" scheme, which compresses images without throwing away any data.

Pixel Perfect: Focus in on resolution

Be you amateur or professional, if you're going to be working with photos on your computer, you should understand the costs and effects of resolution. Images with high resolution show off sharp details but also take up more space on your hard disk than low-resolution, less visually exact images. They also usually cost more to digitize. In order to save yourself some time, money, and hard-disk space, you should figure out the resolution you really need for your project.

But before you can do this, you'll probably want to understand the ways of measuring resolution. When you're using digitizing services or digital cameras, you'll find resolution expressed in terms of pixel dimensions, which measure the long and short sides of a rectangular image. Seattle FilmWorks' digitizing service and the Apple QuickTake 150 camera, for example, both provide images at a 640-x-480-pixel resolution.

If you're working with scanners, on the other hand, you'll usually hear about resolution in terms of dots per inch, or dpi. Storm Software's EasyPhoto Reader, for example, maxes out at 200 dpi, which is considered on the low end of today's scanner capabilities.

To compare dpi with pixel dimensions, multiply your photo's original measurements by the photo's scanning resolution to get the total number of pixels for each dimension. A 4-x-6-inch print scanned at 200 dpi would measure 800 x 1,200 pixels. Work backward to figure out dpi from pixel dimensions. Crank through the mathematics, and you'll quickly see that even the lowest-resolution desktop scanners can provide higher-resolution images than most value-priced digitizing services or digital cameras -- as long as your scanned print is at least 4 x 6 inches.

But will your digitizer of choice provide the resolution you need? More to the point, what resolution do you need? Pick one that's too low, and you'll get jagged, coarse images. Pick one that's too high, and your Mac may not have enough RAM to handle it. Even if it does, an image with a higher resolution than you need will cause your computer and printer to grind away needlessly, and you'll waste hard-disk space storing mammoth files. A 640-x-480-pixel color image takes up just under 1 MB, for example, and a 1,200-x-1,800-pixel color image occupies more than 6 MB.

The resolution you need depends on your final output. If you are a hobbyist, final output is most likely on either your screen or a color inkjet printer. If you plan to output to screen, you'll need to scan your image at your monitor's resolution. You can find out your monitor's pixel resolution by clicking on the Options button in the Monitors control panel.

However, if you plan to print to a desktop color inkjet printer, you'll probably need a higher resolution. Say you've got a 360-dpi color inkjet printer and you want to use it to print a photographic image. Scan the photograph at 360 dpi, right? Wrong. That'd be too easy.

The bad news is that printer resolutions aren't equal to scanning resolutions. The good news is that it's easy to figure out what you need. Here's a handy tip: To figure out the scanning resolution needed, divide the printer's resolution by 3. You'll see that your 360-dpi color inkjet printer can make use of the information in a 120-dpi scanned image. (FYI, according to our handy math, a 4-x-6-inch image scanned at 120 dpi will have a resolution of 480 x 720 pixels.) There's some leeway, so experiment a bit to find the resolution that looks best to your eye. You may find you can get away with a somewhat lower-resolution image, but increasing the resolution drastically isn't going to improve the image quality.

The bottom line? If you're outputting to screen or to a low-end inkjet printer, a budget scan or a low-end digital camera will provide ample resolution -- much of the time. But there's a catch. The math works only if you're using your images at their original size or smaller. If you plan to enlarge your images, you'll benefit from the higher resolution attainable from scanners, service bureaus, and Photo CD.

Say you've got a budget scan of a group shot taken from afar and you want to isolate and enlarge one of the faces to decorate the front of a card. When you blow up the face, however, the image becomes jagged and blurry. Why? Because the pixels that comprise the face are now spread over a larger area, effectively reducing the dots per inch (think of how images printed on a balloon get grainier as you blow up the balloon).

In effect, you need to start out with a higher resolution to end up at your target resolution for the final, enlarged image. This is when you'll need to seek out higher-resolution options, because images from low-end digital cameras and photos-on-floppy providers will fail you.

Photo Fun

4 photo projects in under an hour apiece

You've digitized your favorite photos, rubbed out the red-eye, and fooled around with a slew of special effects. But where do you go from there? If you're short on creative ideas for outputting your artwork, take a look at the following four projects to get ideas for personalizing flyers, calendars, coffee cups, and postcards--each in under an hour.

Project: Real-Estate Flyer

Tools: Image-editing software, Adobe PhotoDeluxe

Step 1: Digitize a photo of a property, using one of the many options mentioned in the main article. Then convert the image to a TIFF file.

(Shown here is the image we used.)

Step 2: Open your file in an image-editing application such as PhotoEnhancer Plus, in which you can crop and touch up your image. We used the clone tool to paint over the antenna on the roof and also to remove the traffic sign that blocked part of the house's front door.

Step 3: Open your image in PhotoDeluxe, and select the Flyer icon, which brings up step-by-step instructions for creating flyers. Early on, you should choose a template and establish placeholders over which you can add the photo and descriptive text. In our example, the For Sale headline was already in place and colored, as was the background gradient. The flyer is now ready for output on a color inkjet printer.

Project: Calendar

Tools: The PrintShop Deluxe CD Ensemble, image-editing software (optional)

Step 1: If necessary, touch up your photo with an image-editing program. You might want to crop it, replace the background, or remove unwanted items.

Step 2: After launching PrintShop Deluxe, you'll see a handful of project options. Select Calendar. Succeeding screens will ask you to specify your calendar's dates and either a wide or tall orientation.

Step 3: Next, you're asked to select from among dozens of backgrounds and then from a handful of layouts. Make sure you pick a layout that leaves enough room for a photo -- not all of them do.

Step 4: PrintShop Deluxe creates the calendar to your specifications.

After the calendar appears on-screen, select File Import to pull in your favorite photo (PICT or EPS format only). Position and/or resize the photo. If you like, add text and graphics to highlight important dates. Then you're ready to print!

Project: Photo Mug

Tools: Image-editing software, Fargo FotoFun! printer, Fargo Mug Kit

Step 1: Use an image-editing application such as ColorIt! to touch up your original photo. In our example (left), we cropped and resized the image to fit on a mug. We then used the clone tool to paint over dust spots and to create a more festive effect by replacing the ugly lamp in the background with Christmas-tree branches. We also fixed the children's red-eye problem by selecting the red pupils with the magic-wand tool and then pouring in black paint with the paint-bucket tool. Finally, we used the text tool to write 1995 (right).

Step 2: Print your image on the Fargo FotoFun! dye-sub printer, using the printer settings recommended for coffee-mug transfers.

Step 3: Secure your printout to a supplied coffee mug, using tape and the special clamp. Bake the mug in an oven for 15 minutes, and cool it in warm water for 2 minutes. Then remove the clamp, tape, and print, and your mug will be ready for a hot cup of coffee.

Step 4: We selected the Brightness icon and lightened the darker parts of the horse -- the neck, legs, and tail -- to make them easier to see. We then clicked on the Text icon to add text and a drop shadow for the text (see below).

Step 5: We printed the file on the Fargo FotoFun! dye-sub printer, using paper supplied in Fargo's postcard kit. The final product was a glossy, photograph-quality postcard suitable for mailing.

Project: Postcard

Tools: Adobe PhotoDeluxe, Fargo FotoFun! printer, Fargo Postcard Kit

Step 1: Our original photograph of the carousel horse was unimpressive, especially with the red fence marring the composition. We saved an extra copy of the image.

Step 2: We selected PhotoDeluxe's Motion filter to distort the image and to add the illusion of motion to the horse.

Step 3: We returned to the copy of the original photo and clicked on the Change Background icon. PhotoDeluxe then stepped us through the isolation of the horse that we wanted to keep and its placement in the photo we had distorted with the motion filter.

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Fujifilm Announces New Fujicolor CD to Complement Company's Online Photo Service - Fujifilm.Net.

Business Wire, p1268

Feb 3, 2000

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Business &Technology Editors

Photo Marketing Assn. Convention

ELMSFORD, N.Y.--(BUSINESS WIRE)--Feb. 3, 2000

At this year's Photo Marketing Association Trade Show, Fuji Photo Film U.S.A, Inc. is helping to enhance the ways in which people are using their pictures by debuting the Fujicolor CD and launching a new Fujifilm.Net site. The Fujicolor CD - now available in the U.S. for the first time - incorporates a version of the popular photo editing software from Microsoft Corp., Microsoft Picture It! 2000, which makes it easy for consumers to edit and share images with friends and family. Fujifilm.Net offers a powerful, convenient and easy-to-use way for pictures to be stored, viewed and shared online.

"By forming alliances with such cutting edge companies as Microsoft Corp., Fujifilm has taken the lead in providing users with just what they want from digital imaging: greatly improved image sharing and viewing as well as easy-to-use picture editing options," said Manny Almeida, Vice President, General Manager, Digital Imaging Division, Fuji Photo Film U.S.A., Inc. "Consumers will find that compared to other competitive options Fujifilm's new Fujicolor CD and the redesigned Fujifilm.Net Internet photo service are fulfilling their needs quickly and easily."

Fujicolor CD -- Ideal for Digitized Photo Storage, Enhancement and Sharing

Designed to store images in a digitized format on a CD, Fujifilm's new Fujicolor CD offers consumers a new way to enjoy their photos and retailers, a new opportunity for increased sales and profitability. In particular, users will appreciate the ease with which the Fujicolor CD - packaged with Microsoft Picture It! Express 2000 software - allows them to access and view their images on their computers. Users can, for example, change the size of their pictures, adjust color and brightness, correct red eye, remove dust, sharpen, warp and blur images; add color

"painting" or convert photos to black-and-white. And, after saving images to a hard drive, they can be shared with groups of friends and family via email. Consumers will also enjoy the flexibility of Fujicolor CD which can be input into the Fujifilm Frontier or Fujifilm Aladdin Picture Center to obtain high quality photographic prints.

Available to retailers nationwide who own or plan to install a Fujifilm Digital Minilab Frontier 370 or Frontier 350, the new Fujicolor CD service is equally as easy for consumers to access. Photofinishing customers need only check off the "Fujicolor CD" box on the photofinishing envelope when dropping off film for processing. When the pictures are ready, consumers will receive a Fujicolor CD with their photos digitized onto the CD. From that point on, users can do virtually anything they like with the images, from removing red-eye and cropping or enlarging photos to making photo cards, calendars and collages. And, with the click of a mouse, images can be quickly and easily emailed to family and friends.

Available now, the new Fujicolor CD and Fujicolor CD service are supported by a variety of marketing materials from Fujifilm including CD sleeves and point-of-purchase leaflets and brochures.

Fujifilm.Net - Better Than Ever

With a powerful new navigation interface that speeds up the loading and viewing of consumers' password-protected snapshots and makes the process of emailing photographs simple, fast and more flexible than ever before, Fujifilm.Net offers both the perfect venue for sharing images with family and friends as well as a number of important advantages as compared to other online photo services.

The newly revamped Fujifilm.Net service, for instance, allows consumers to send digitized photos to different people - whether located around the corner or half way around the world - with one series of mouse clicks instead of tediously sending the images separately to each addressee, as can be the case with other services. Other new viewing, emailing and time-saving features include allowing users to view an enlarged version of a single photo while keeping all the other digitized images of the roll available without the time-consuming step of changing screens. Three sizes of image viewing are also available: the new thumbnail and professional resolution, along with the previously available screen resolution. And, because the new Fujifilm.Net site allows consumers to order actual photographic prints from their web-stored digital photo files, Frontier Lab System retailers have expanded opportunities to realize increased revenues.

Fujicolor CD and Fujifilm.Net Supported By Fujifilm Digital Minilabs 370 and 350

As part of Fujifilm's Total Imaging Solution, both the Fujicolor CD and Fujifilm.Net are supported by Fujifilm's highly acclaimed Digital Minilabs Frontier 370 and Frontier 350. Utilizing Fujifilm's unique solid-state laser technology, both the Frontier 370 and 350 deliver extraordinary print quality, convenience and speed. They provide retailers with the opportunity to custom-tailor an imaging system for silver halide photography as well as for a range of digital sources,

including prints from digital still cameras and digital files saved on PC cards, floppy discs, CD-ROMs and Zip(TM) disks.

The "core of connectivity," the Frontier systems are further enhanced by the addition of new, cutting edge software developed by Fujifilm to provide a truly seamless system of connectivity and digital capability including driving the new Fujifilm Imaging Controller. Utilizing IBM's(TM) state-of-the-art Netfinity 5000 server, the Imaging Controller is custom-configured to network with the Fujifilm Frontiers, the family of Fujifilm Aladdin Picture Centers and Fujifilm.Net, and to provide a powerful, fully integrated digital system that, among other things, makes possible the high-speed production of photographic prints from virtually the entire gamut of digital sources, the burning of Fujicolor CDs, and uploading to Fujifilm.Net. Plus, with built-in flexibility for growing in capacity and capability, the new Fujifilm software and Imaging Controller offer retailers an outstanding resource for growing their business by meeting continually increasing demands for expanded digital imaging products and services.

"With our new Fujicolor CD, our redesigned Fujifilm.Net service and our highly-acclaimed Digital Minilabs Frontier 370 and 350, Fujifilm is providing retailers with even greater means by which to take advantage of the profit potential of digital imaging products and services," continued Almeida. "And, with the high level of connectivity provided by Fujifilm's Total Imaging Solution, retailers and consumers alike will increasingly benefit by finding new ways to take, use and share their images."

EDITORS NOTE: for More Information On This Product Readers Can Access the Fujifilm Web site at <http://www.fujifilm.com>

Fuji Photo Film U.S.A., Inc. is the U.S. marketing subsidiary of Fuji Photo Film Co., Ltd. of Tokyo, a leading manufacturer of imaging and information products.

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DIGITAL PHOTOGRAPHY COMES INTO FOCUS COMPUTER AND FILM COMPANIES MAKE EASE OF USE A PRIORITY AFTER REALIZING CONSUMERS ARE CONFUSED.

San Jose Mercury News (SJ) - Sunday, March 7, 1999

By: MIKE LANGBERG, Mercury News Computing Editor

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TEXT:

NEW technology rarely changes the lives of ordinary people until it becomes easy to use.

That's the challenge facing digital photography.

Millions of amateur snapshot buffs are beginning to grasp the idea that digital images -- either from a digital camera or scanned from film -- can be altered with a personal computer, turned into personal keepsakes such as greeting cards, or instantly shared with friends through the Internet.

But, despite great strides in making the technology less expensive, digital photography hasn't spread into the mass consumer market because the path is obscured by technological undergrowth. Figuring out how to configure a personal computer's serial port to accept input from a digital camera, for example, or deciding whether pictures posted on a Web page should be saved in the JPEG or GIF format are baffling issues for users who aren't graphics professionals.

"It's too hard to move images around and share them," says Lisa Walker, president of the Digital Imaging Group, an industry consortium based in Millbrae.

Digital photography, in Walker's view, needs to become as easy as -- or easier than -- dropping off a roll of 35-millimeter film at a local photo processor, then collecting prints an hour or a day later.

The first steps in that direction are coming this year, with a rush of new products and services aimed at removing what David K. Jones, a marketing executive at Eastman Kodak Co. in Rochester, N.Y., calls "the intimidation factor."

Part of that intimidation factor is an erroneous belief that digital photography is synonymous with digital cameras -- an off-putting proposition, given that digital cameras aimed at consumers run from \$400 to \$1,000. That's why several of the new initiatives provide a bridge for conveying 35mm pictures into the digital world.

Many of these user-friendly ideas were unveiled at recent trade shows in Las Vegas, the Consumer Electronics Show in January and the Photo Marketing Association International convention in February. Here's a look at some of them:

"YOU'VE GOT PICTURES":

America Online has made the expression "You've Got Mail" so popular that it became the title of a Tom Hanks-Meg Ryan movie released last year. The world's largest online service is preparing to extend that franchise into digital photography -- without requiring the purchase of a digital camera.

In a partnership with Kodak, AOL is launching a new service this summer called "You've Got Pictures." AOL's 16 million members will be urged to mark an AOL box on the processing envelope when dropping off film. Customers would get back their prints and negatives as usual, but the images would also be scanned into digital format and stored on AOL's computers.

A few days after dropping off the film, the same cheery male voice that announces "You've got mail!" will declare "You've got pictures!" Members could then view thumbnail-sized images of every picture from their roll of film. Just by pointing and clicking with a mouse, they can display the thumbnails at full size. With a few more mouse clicks, the images can be embedded in e-mail messages. It will also be easy to assemble photo albums, complete with captions, for sharing with other AOL members.

For a small extra fee, members will be able to download a high-resolution copy of an image suitable for printing. And Kodak will provide photograph-quality reprints by mail.

AOL hasn't announced pricing or the start date for "You've Got Pictures," but the service should be available nationwide at launch. A similar service started in December through a

partnership between the mail-order photo processor Seattle Film Works and the Excite service on the World Wide Web.

KODAK PICTURE CD:

Feb. 1, Kodak began a national roll-out for another approach to digitizing traditional film images that uses CD-ROMs instead of online retrieval. The Picture CD service starts much like "You've Got Pictures": Customers check off a Picture CD box on the processing envelope and still get back prints and negatives. But, for about \$9, they also get a CD-ROM containing high-resolution digital images.

Back in 1991, Kodak tried to interest consumers in CD-ROM processing with a product called Photo CD. It was an immediate failure, in large part because consumers had to buy a \$400 Photo CD Player to display the electronic images on a television set -- in those prehistoric days, home computers didn't have CD-ROM drives. Photo CD lives on, but is used almost entirely by professional photographers; Kodak is killing a more recent failed attempt at CD-ROM processing called FlashPix CD.

What makes Picture CD different is ease of use. Put a Picture CD disc into a PC running Windows 95 or Windows 98 and a program automatically launches displaying thumbnail images, providing simple picture-editing tools and even sending e-mail -- using a built-in e-mail program and your existing Internet connection -- with digital photographs as file attachments. Picture CD is available now at Target stores nationwide and should be offered by Walgreen and K-mart stores by the end of March. Wolf Camera plans one-hour Picture CD processing at two-thirds of its 750 stores by August. (For a more detailed evaluation of Picture CD, see the "Tech Test Drive" column accompanying this story.)

"SMART" KIOSKS:

One of the big stumbling blocks for digital cameras is that buyers must also have a PC for downloading and sharing pictures. But a new generation of "smart" kiosks in photo shops, pharmacies and similar locations will make it possible to use a digital camera without a computer.

Fuji, Kodak's rival in the film business, is introducing one such kiosk called Fujifilm Aladdin Digital Picture Center. At first glance, the Aladdin looks something like today's kiosks that merely offer high-quality copies of photographs. But the Aladdin has slots for memory cards from most types of digital cameras. Images from the memory cards are then displayed on a screen,

where customers can edit them and order on-the-spot prints. The kiosk is also connected to the Internet, so pictures can be dispatched to friends and family by e-mail.

Several other companies -- including Kodak, Konica and Live Picture Inc. -- are working on similar "smart" kiosks. Expect to see them popping up everywhere starting in the second half of this year.

PHOTO PRINTERS:

Another way to cut PCs out of the digital photography loop is with printers that connect directly to digital cameras. At least a half-dozen companies -- including Fuji, JVC, Olympus, Panasonic, Polaroid and Ricoh -- offer "photo printers" using a process called dye sublimation that produces near-photo-quality output on special paper.

These "dye sub" printers, mostly priced at \$400 to \$500, connect directly to digital cameras through a cable or a slot for memory cards. And most of them can be hooked to a television set to display images, so users can see what they're printing. A few even offer limited tools for cropping and editing images.

Dye sub printers can also be plugged into a PC, but -- because they are designed solely for producing photographs -- they aren't a substitute for the more common inkjet printers that also handle text and graphics. For those who want to stick with an inkjet, Lexmark offers the \$349 Photo Jetprinter 5770 that comes with slots that accept the two most common types of digital camera memory cards, Compact Flash and Smart Media. Inkjets, using special coated paper, can come close to photographic quality, although not quite as close as their dye sub cousins.

How fast will these innovations lure consumers across the digital divide?

There isn't a consensus.

"The consumer market is accelerating. The leap probably be made in the next 12 to 18 months," says Glenn S. Omura, a professor of marketing at Michigan State University who studies the photo-processing industry. In other words, he expects the vast majority of amateur photographers will begin migrating toward digital by the end of next year.

But Michelle Lampmann of the research firm InfoTrends Research Group Inc. in Boston says it could be three to five years before the selling proposition for digital is so compelling that consumers walk away from the convenience and familiarity of 35mm film.

"Consumers still want to hold the prints in their hands," Lampmann declares.

Alexis Gerard, editor and publisher of The Future Image Report newsletter in San Mateo, says the change will be "generational" as today's computer-savvy children and adolescents grow into adults with families and the desire to take lots of pictures of them.

Reflecting on his own children, 11 and 14, Gerard concludes: "Why would my kids ever use a film camera?"

CAPTION:

Photos (3)

PHOTO Portable memory cards are a key part of digital photography. They allow you to remove your saved pictures from the camera and load them into a printer, computer or one of the "smart" kiosks that are popping up in photo shops and drugstores.

(990307 CO 1E)

PHOTO Lexmark Jetprinter 5770, below, lets you print out your digital photos on high-quality paper.

(990307 CO 1E)

PHOTO Kodak's Picture CD uses a magazine-like format to display a thumbnail index of photos on a CD-ROM as well as editing options.

(990307 CO 4E)

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DISCOVERIES: Kodak DC 240: Digital camera with conventional feel

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ACW reviews two digital imaging products: the Kodak DC240 camera and the Epson Stylus Color 900 printer.

Kodak DC240

First generation digital cameras did not go beyond trying to act as cameras without film, relying on special effects to come from bundled software. The 1.3 megapixel Kodak DC240 adds features and yet feels like a real camera. As with conventional digital cameras, the DC240 has a power-on switch; sports a LCD screen to preview and review photographs taken; has a Compactflash slot for the memory cards which store the photo, and a port which connects it to the computer.

In addition, there is true 6X zooming capability, rather than a digital zoom; a port for AC power, so that users need not worry about the typically short battery life; and a video-out port, so that pictures from the camera can be viewed directly on the television.

At the same time, the camera has features found in the better conventional autofocus cameras today: a choice of flash modes, including red-eye; a 10-second self-timer; macro and landscape focus, and a zooming function graduating between wide angle (117mm) and telephoto (39mm).

User-friendly features include a dial with four modes: capture, review, connect, and setup, covering the four main functions of a digital camera. A menu button at the top left corner of the LCD screen provides additional features on-screen, while the up, down, and "do-it" buttons to the right of the screen allow the user to navigate and choose from the menu. Left and right buttons at the bottom the screen page through the photographs taken in sequence.

The camera requires the bundled Kodak Picture card to be inserted before it can take pictures.

Locating and inserting the Kodak Picture card, which conforms to the Compactflash standard, and the batteries were simple. The camera was then switched on with the mode dial on "setup", and the LCD screen provided a menu of configuration, such as setting the time and choice of special effects.

Further menus are available when pressing the menu button under the other modes.

The mode dial was then turned to "capture" and several test pictures taken (top right). The camera allows a live video-type preview of the scene, as well as an immediate review of the snapshot through the "Quickview" feature.

All of our pictures were taken at the highest resolution, and at the "best" quality setting, allowing three images per MB to be stored at a time. The camera offers high (1280 x 960) and low (640 x 480) resolutions. Leaving the camera to adjust automatically for lighting conditions gave very good results, but the DC240 allows enthusiasts to adjust specifically fluorescent, tungsten or daylight (outdoor) lighting as well.

Review Feature

As with other digital cameras, recently taken photographs can be viewed and discarded if they are unacceptable.

With the DC240, the mode dial has to be turned to "review", and the LCD screen will display the most recently taken picture. Users can use the left and right arrow buttons to view older pictures.

Beyond this standard function, pressing the menu button at this time will display the Review menu, which includes options like viewing pictures three at a time through the "filmstrip" feature, or magnified at twice the normal size. At this time, pictures can be deleted, or protected from deletion.

~~When at a Kodak Picture Kiosk, this menu also holds the key to printing thumbnails, and marking pictures for printing and editing.~~

According to Gladys Ngai, regional marketing manager, Digital Applied Imaging, Greater China Region, Kodak, there are 143 "Picture Maker" kiosks in Hong Kong. "Customers can bring their Kodak Picture cards and ask for output. Each A4 size print out costs about HK\$60 (US\$7)," she said.

Kodak provides several applications with the camera for capturing, enhancing, and organising images on both Macintosh and PC platforms. Each application provides online help, and Kodak itself offers support at www.kodak.com.

To transfer the pictures, select the appropriate cable, and connect the camera to the computer. The cables were labelled at each end, so there was no guesswork involved. A serial connection is provided for the older Macintosh and PC machines, while USB is also supported. In this case, the camera was connected via USB to a Pentium MMX Sharp A-150 notebook running Windows 98 and 64 MB RAM.

Verdict

While the camera is targeted at both business and general users, beginners may be overwhelmed by the different features and the multiple buttons that have to be pressed to achieve different effects.

Not printed

But put the HK\$4600 (US\$593) DC240 in the hands of someone who is familiar with a mid-range autofocus camera with zooming capabilities, or who has used digital cameras before-and they may not need another camera for a long time.

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